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## Executive Summary

The Washington State Transportation Framework for GIS (WA-Trans) is a statewide project effort to develop a location-based, multi-model transportation data set. This means that data is gathered and compiled from sources across the state. Long-term maintenance must be performed on this data set to keep WA-Trans a viable and useful product. Successful implementation of the data set requires resolution of many issues in the organizational, cultural, and technical categories.

To obtain involvement by the largest set of potential players, their needs for this product must be understood. To justify any significant involvement in data formatting, sharing, and maintenance, a business cost benefit justification must be performed. All of this is based upon a complete business needs assessment.

### ***Process Used for Assessment***

Interviews were conducted with various organization representatives from across the state to gather the initial business needs. Business needs were then documented from this process and the initial document was presented to the WA-Trans Partners Group and the WA-Trans Steering Committee Group for acceptance and feedback. Each business need is uniquely numbered, titled, and described. The source of each business need is identified as generic business functions, which may share in the business need, and also identifies specific partners who may find a particular business need useful.

The business needs data was entered into a relational database and prioritized to:

1. Determine the scope of the implementation phases of the project.
2. Perform business cost-benefit analysis.
3. Select and design the best database that would meet the business needs based on the business needs priority.

### ***Key Business Functions***

Listed below is a summary of the most important business functions. They are divided into two main categories: a) Homeland Security / Emergency Related Functions and b) General Transportation Related Functions. All of the business functions are described later in Section 3.

#### **Homeland Security / Emergency Related Functions**

##### Homeland Security / Emergency Management and Response

WA-Trans supports the coordination of transportation during an emergency, including analysis of routes into and out of a disaster area, route closures and detours, and transit organized to move people during a disaster.

WA-Trans facilitates emergency planning, including determining infrastructure vulnerability assessment. Using statewide addresses in WA-Trans supports the FCC Phase II Mandate for Enhanced 911 Emergency Response across the state. WA-Trans also supports the concept of “lifelines” and an ongoing project of King County Emergency Management to identify lifelines.

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## General Transportation Related Functions

### Maintenance of Transportation Infrastructure

WA-Trans combined with other data can enable maintenance to analyze interfaces for drainage features data between various transportation agencies statewide. Analysis includes information about how these systems cross various multi-jurisdictional roads systems and affect those roadways.

WA-Trans can facilitate maintaining an inventory of features along the roadway statewide. This data can be used for scoping transportation projects and to support cross-jurisdictional maintenance service agreements as well as asset management. WA-Trans data can also be helpful for rail and ferry projects.

### Traffic Safety Records Support

Location-based software is needed for tracking collision locations and relating it to response across law enforcement, emergency response, and transportation planning and maintenance. WA-Trans will become the basis for many applications that require a GIS base map.

### Transportation Planning Studies

Developing planning studies requires the use of multi-jurisdictional, multi-modal transportation data. Planning offices throughout the state will require significantly less time to compile the data for existing condition reports using WA-Trans data as a key source for consistency. WA-Trans data would also contribute to the development of regional transportation demand models by Metropolitan Planning Offices, which are used by Washington State Department of Transportation (WSDOT) regional offices.

Additionally, WA-Trans would provide all offices that participate in transportation planning a view of what other jurisdictions across the state have.

**Note:** The business needs that have been identified with each of the main business functions are described in the “Business Needs Description” section of this document.



# **Business Needs Document**

## **Version 2.0**

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**Washington State  
Department of Transportation**



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## 1. About This Document

The *WA-Trans Business Needs Document* outlines the business needs identified for the Washington Transportation Framework Project (WA-Trans). It provides high-level context information and then adequately details each business need so that business requirements may be derived from them. Each need is identified by the business function that will use it. This documentation includes the source of the identified need as well as the specific partners who may share or contribute to that need.

Business needs are defined as economic drivers for participating in the activity of WA-Trans development. There is beneficial outcome to WA-Trans as well if the process is designed to facilitate meeting the various business needs.

### **Background**

Transportation framework is one theme of the total framework concept. In the 1990s it was recognized that the cost of producing Geographical Information Systems (GIS) data was prohibitively high and that duplicate data was proliferating. In an effort to be more efficient, the framework concept was conceived for GIS by the Federal Geographic Data Committee (FGDC).

There are several themes, one of which is transportation. Other themes identified by the FGDC include:

- Elevation and bathymetry
- Hydrography
- Geodetic control
- Cadastral
- Government units
- Orthoimagery

The goal is for these themes to work together to provide a complete picture of the geographic data for the state of Washington.

The Washington Geographic Information Council (WAGIC) has sponsored efforts to work on specific themes in the state. Efforts have been made in the cadastral, hydrography, and orthoimagery themes. The transportation effort is not new, but has momentum coupled with a full-time project manager and an approach that relies on formally defined business needs, requirements, and functional specifications. This document defines the business needs.

### **Vision**

The Washington State Transportation Framework is a seamless set of data that is consistent, connected, and continuous among segments of the transportation framework and with other framework layers. The transportation framework represents the best data available and includes mechanisms to improve over time. Framework data is accessible to the general public at minimal cost and restrictions.

***Value Provided to Customers***

Customers will have access to data regarding various modes of transportation including roads, rails, airports, ferry terminals and routes, and ports for the whole state. They will have the ability to attach their own data to this so they can see that data in relationship to the statewide transportation systems. The customer will be able to rely on transportation data outside their own jurisdiction when developing applications. The framework will provide a standard that will facilitate data exchange. The ability to do this exchange will increase business opportunity while reducing costs of duplicate data production and data inconsistency.

## 2. Customer Profiles

The project has various customers who have been identified. Several customer categories have also been identified. However, this data has wide usefulness and many potential customers may remain unidentified. Specific customers participating or providing input to this document are identified — from both the outside as well as inside WSDOT. Customers identified at this time are listed in the table below.

### **Federal Agencies**

- US Bureau of Land Management
- US Bureau of Indian Affairs
- US Census Bureau
- Federal Highway Administration
- US Department of Energy (Hanford)
- US Forest Service
- National Parks Service
- US Geological Survey
- Indian Health Services

### **Washington State Agencies and Regional Organizations**

- County Road Administration Board
- Department of Corrections
- Department of Fish and Wildlife
- Department of Health
- Department of Information Services (DIS)
- Department of Natural Resources
- Department of Social and Health Services
- Department of Transportation (WSDOT)
- Eastern Washington University Tribal Technical Assistance Program
- Enhanced 911
- Legislative Efficiency and Accountability Program

- Military (particularly Emergency Management Division)
- Sound Transit
- Utilities and Transportation Commission
- Washington Geographic Information Council (WAGIC)
- Washington State Parks
- Framework Management Group (FMG)
- Strategic Freight Transportation Analysis Project (SFTA)
- Freight Mobility Strategic Investment Board (FMSIB)
- Office of the Superintendent of Public Instruction
- Information Services Board Geographic Information Technology Subcommittee
- Statewide Information Coordination Consortium

### **Divisions or functions within WSDOT specifically interested at this time**

- Aviation Office
- Bridge Preservation Office
- Design Office
- Emergency Management Office
- Environmental Affairs Office

- Freight Strategy and Policy Office
- Government Liaisons (Tribal Liaison)
- Highways and Local Programs
- Interactive Transportation Systems (TRAC)
- Program Management Office
- Planning Office
- Public Transportation Office
- Rail Office
- Regional Project Engineers office (Scoping function)
- Transportation Data Office (TDO)
- Transportation Demand Management Office
- T2 Program
- Urban Corridors
- WSF Council for Disaster Planning
- WSF Terminal Engineering

### **Tribal Nations**

- Jamestown S'Klallam Tribe
- Lummi Tribe
- Makah Tribe
- Muckleshoot Tribe
- Quinault Indian Nation
- Samish Tribe
- Stillaguamish Tribe
- Tulalip Tribe
- Snoqualmie Tribe

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**Local Organizations**

- Association of Washington Cities
- Benton-Franklin Council of Government (COG)
- Benton County
- City of Auburn
- City of Kennewick
- City of Monroe
- City of Pasco
- City of Seattle (DOT and Public Utilities)
- City of Spokane
- City of Tacoma
- Clallam County
- Clark County
- Community Transit (Snohomish County)
- Douglas County
- Franklin County
- Island County
- Ferry County
- King County Emergency Management
- King County Metro (T-Net Project)
- Kitsap Transit
- Lewis County
- Lincoln County
- Mason County
- Pend Oreille County
- Pierce County
- Port of Seattle
- Puget Sound Regional Council
- Skamania County (Sheriff's Office E-911)
- Spokane County
- Spokane Regional Transportation Council
- Stevens County
- Thurston County
- Yakima County
- Yakima Valley Council of Governments (COG)
- Walla Walla County

- Whatcom Council of Government (COG)

**Private Organizations**

- Environmental Systems Research Institute Inc. (ESRI)
- Green Crow Management Services
- Longview Fibre
- Love GIS Consulting
- Marshall
- Nimblus Inc.
- Safe Software, Inc.
- Washington Forest Protection Association
- Weston Solutions

**Other States**

- California
- Idaho
- Nebraska
- Oregon
- Ohio
- Tennessee

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### 3. Main Business Functions

#### ***Process Used for Assessment***

Interviews were conducted with various organization representatives from across the state to gather the initial business needs. Business needs were then documented from this process and the initial document was presented to the WA-Trans Partners Group and the WA-Trans Steering Committee Group for acceptance and feedback. Each business need is uniquely numbered, titled, and described. The source of each business need is identified as generic business functions, which may share in the business need, and also identifies specific partners who may find a particular business need useful. The business needs data was entered into a relational database and prioritized to: 1) determine the scope of the implementation phases of the project, 2) perform business cost-benefit analysis, and 3) select and design the best database that would meet the business needs, based on the business needs priority.

#### ***Summary Results***

The summary results listed below are classified as main business functions.

**Note:** Several business functions and potential business users are not included in this summary due to space limitations.

#### **Asset Management**

When WA-Trans is complete, it will be possible to identify and locate transportation assets statewide using a variety of data sources. Transportation assets represent a large public economic investment and managing those assets across a city, county, reservation, or state represents a significant cost. Additionally GASB-34 requirements necessitate detailed asset tracking and valuation.

#### **Cross-Governmental & Public Communication**

One of the main themes across business needs was the need for significantly enhanced communication among agencies of the same level of government and those on different levels. One example of this is communication activity along the roadway, including utilities work and other work. This facilitates coordination of paving and other activities when conducted in the earlier planning stages.

WA-Trans provides a common transportation base map supporting the communication and information exchange with visualization tools. The source data is inter-governmental so it can be used by all levels, regardless of GIS.

WA-Trans provides basic transportation data that combined with other data facilitates the communication of projects to the public without regard to jurisdictional boundaries. It supports the Puget Sound Traffic Flow Map being expanded beyond the state highway system. WA-Trans could also be used to support answering customer calls about activities on all roadways in a more coordinated manner.

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## **Environmental Analysis**

WA-Trans facilitates the analysis of transportation features in a watershed. It provides data needed for impervious surface analysis, and allows evaluation of the environmental data system-wide in relationship to transportation projects statewide. WA-Trans facilitates the communication and analysis of habitat along the roadways.

## **Freight Mobility Planning and Management**

WA-Trans will contain information regarding the location of navigable waterways and port facilities. Much freight is transported by barge and rail as well as truck.

WA-Trans supports the analysis of geocoded truck flows. Tracking truck traffic across the state can be used by highway planners and others.

## **Geocoding / Event Location**

The ability to identify things that happen based on the location along the transportation network is the most important business need identified by the WA-Trans. This is fundamental to almost all other identified business needs. WA-Trans will be the basis for identifying the location of things along the transportation system statewide using route-milepost, addresses, and GPS coordinates.

## **Homeland Security / Emergency Management and Response**

WA-Trans supports the coordination of transportation during an emergency, including analysis of routes into and out of a disaster area, route closures and detours, and transit organized to move people during a disaster.

WA-Trans facilitates emergency planning, including determining infrastructure vulnerability assessment. Using statewide addresses in WA-Trans supports the FCC Phase II Mandate for Enhanced 911 Emergency Response across the state. WA-Trans also supports the concept of “lifelines” and an ongoing project of King County Emergency Management to identify lifelines.

## **Law Enforcement**

WA-Trans supports multi-faceted tools to assist in law enforcement. For example, it could be used in a tool to collect vehicle collision data. WA-Trans could be incorporated into a program to identify sex offender housing sites to determine how close a registered sex offender’s residence is to a school or daycare center.

## **Maintenance of Transportation Infrastructure**

WA-Trans combined with other data can enable maintenance to analyze interfaces for drainage features data between various transportation agencies statewide. Analysis includes information about how these systems cross various multi-jurisdictional roads systems and affect those roadways.

WA-Trans can facilitate maintaining an inventory of features along the roadway statewide. This data can be used for scoping transportation projects and to support cross-jurisdictional maintenance service agreements as well as asset management. WA-Trans data can also be helpful for rail and ferry projects.



### **Map Production**

When WA-Trans is complete, it will be possible to create maps of the statewide transportation system with the most up-to-date information available across the state. These maps will be used in a variety of ways supporting all the business functions described above.

### **Public Lands Management**

WA-Trans supports agencies responsible for management public lands in much the same way it supports other agencies. WA-Trans will provide critical transportation information needed for fire suppression, law enforcement and homeland security on public lands as well as planning for new roads, impervious surface analysis for roads and trails, etc.

### **Traffic Safety Records Support**

Location-based software is needed for tracking collision locations and relating it to response across law enforcement, emergency response, and transportation planning and maintenance. WA-Trans will become the basis for many applications that require a GIS base map.

### **Transit and Public Transportation**

WA-Trans will support the coordinated dispatch and scheduling of demand response rides for disabled and needy individuals. WA-Trans provides data that enhances the communication and analysis of park and rides, and connecting routes. WA-Trans data is a necessary component of the Travel Options project Phase II, which Oregon and Washington are working on.

### **Transportation Planning Studies**

Developing planning studies requires the use of multi-jurisdictional, multi-modal transportation data. Planning offices throughout the state will require significantly less time to compile the data for existing condition reports using WA-Trans data as a key source for consistency. WA-Trans data would also contribute to the development of regional transportation demand models by Metropolitan Planning Offices, which are used by Washington State Department of Transportation (WSDOT) regional offices.

Additionally, WA-Trans would provide all offices that participate in transportation planning a view of what other jurisdictions across the state have.

**Note:** The business needs that have been identified with each of the main business functions are described in the “Business Needs Description” section of this document.

### **Strategic Value**

WA-Trans is identified as part of the Washington State Enterprise Architecture as a strategic data resource. It provides the transportation theme necessary for the National Spatial Data Infrastructure. A Return On Investment study, which is partially complete, shows a current return of 11% for the WA-Trans Project Statewide. Additionally many strategic benefits to the State of Washington have been identified in that report.

## 4. Business Needs Description

The business needs described in this section are considered high level, and are presented in common business language. Each need is categorized by the main business function it is intended to support. (Main business functions are defined in the “Executive Summary” section of this document.) Page descriptions are formatted and documented as shown below. For a table of business function categories and associated business needs, please refer to Appendix A, “Business Function Categories and Identified Business Needs”.

**Note:** In certain cases a business need may fall into multiple business function categories. When this happens, the first occurrence of the business need is fully described in this document. Any subsequent occurrence of that need is abbreviated, and the reader is referred back to the initial reference.

<b>Business Need</b>	Each business need is associated with a record identifier (A, B, C, etc.); for example, <i>Business Need – A</i> . The identifier is for reference purposes only. At this point, all identifiers are subject to change. When stakeholders approve the business needs as substantially complete or correct, a “permanent” I.D. will be assigned, with room to insert new ones as needed.
<b>Title</b>	This is a short descriptive name used to identify the given business need.
<b>Description</b>	This is a description of the business need. It includes enough detail from which to create the business requirements. <b>Note:</b> The description heading includes a footnote mark (for example, Description <sup>1</sup> ), which refers to the footnote reference at the bottom of the page.
<b>Audience</b>	This is the intended audience for whom the business need is applicable.
<b>Business Function</b>	This is a list of generic business functions that may use WA-Trans to assist in meeting this business need. Generic business functions are not defined by specific organizations.
<b>GIS Function</b>	This is a list of geographic information system (GIS) functions that are supported directly or indirectly within the Washington Transportation Framework for GIS (WA-Trans).
<b>Source Provider</b>	This is the provider who identified the original business need.
<b>Reference</b>	In the footnote section of each business needs page is a reference number (for example, <i>Reference: 23</i> ). This number corresponds to the <i>original</i> Business Needs record found in the primary source document ( <i>WA-Trans Business Needs Document, November 14, 2005</i> ). Multiple reference numbers may be listed in the footnote as well as other source materials used to create the current business needs document.  For a complete list of business needs and the original source records they were derived from, please refer to Appendix B, “Business Needs Cross-Reference Table”.

## 5. Asset Management

### ***Business Need - A***

<b>Title</b>	County Bridge Locations and Bridge Data Sharing
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Facilitate bridge data sharing among various road authorities</li> <li>• County bridge locations</li> </ul> <p><u>Facilitate Bridge Data Sharing Among Various Road Authorities</u></p> <p>A variety of bridge data is needed statewide. The WSDOT Bridge Preservation Office is federally mandated to report on bridges statewide. The extent of this mandate includes city, county, state, and some privately owned bridges with public traffic. The office is responsible for inspections on regular inventory, which includes big interchanges, bridges over dry gulches, other raised highways, and anything over water and all tunnels.</p> <p>The office is also responsible for movables and specialized structures, such as the Narrows and floating bridges. They need to know the following data about bridges:</p> <ul style="list-style-type: none"> <li>• Location of bridges and structures (tunnels, etc)</li> <li>• Cross streets close to bridges</li> <li>• Stream or water body names</li> <li>• Proximity of bridge to railroad</li> <li>• Mechanism to share bridge inspection status, type, frequency, due dates, whether navigable water, location with counties and cities</li> <li>• Structural bridge information from counties that shows up on a statewide map</li> </ul> <p>Additional needs include:</p> <ul style="list-style-type: none"> <li>• Information from local governments to assist in bridge prioritization — for repair or retrofit in situations of disaster (for example, earthquake) where many bridges may need to be repaired or retrofitted at once.</li> <li>• Information about egress routes into tribal lands and structures on them.</li> <li>• Data from the Federal Government about back-country bridges for their inventory.</li> <li>• Cities and counties would like a better mechanism for sharing bridge data with WSDOT, and have better access to WSDOT data about bridges within their jurisdiction that they don't currently have jurisdiction over.</li> </ul> <p><u>County Bridge Locations</u></p> <p>There is a need for a map showing the bridge locations in the County. It is scaled at 1" = 2000'.</p>
<b>Audience</b>	WSDOT, Counties, Cities, Local Governments, E-911, US Geological Survey,

	US Forest Service, US Bureau of Land Management, FHWA
<b>Business Function</b>	Public Works, Transportation Maintenance, Transportation Operations, Emergency Management, Bridge Maintenance and Emergency Route Planning
<b>GIS Function</b>	Event Location, Interagency Functions
<b>Source Provider</b>	WSDOT Bridge Preservation Office, City of Seattle Department of Transportation, Pierce County

<sup>1</sup> Reference: 15, 79 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - B**

<b>Title</b>	Roadway and Transportation Features, Analysis, and Inventory
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Drainage system features and routes from all roadways</li> <li>• Inventory data of features along the roadway</li> <li>• Right-of-way feature inventory</li> <li>• Impervious surfaces analysis data</li> <li>• Water crossing on roadways</li> <li>• Communicate and analyze transportation features in a watershed</li> </ul> <p><u>Drainage System Features and Routes from All Roadways</u></p> <p>There are many potential interfaces for drainage feature data to be shared between WSDOT and county and city government organizations. When a chemical spill occurs on the roadway, local jurisdictions need to know the drainage so they can determine the impact to their water, lands, and emergency services. Some of WSDOT's culverts and other drainage features cross county and municipal roads. Their state of repair affects the roadway they cross. This information is also used to plan for emergencies with local fire and police.</p> <p>County and municipal drainage also go into WSDOT right-of-way, roadways, and other transportation features that impact WSDOT maintenance. Another use of this information is during project scoping both by WSDOT and county and city public works. Drainage feature information is needed along the roadway, and where it goes is also needed.</p> <p>The Washington State Department of Health has expressed an interest in bridges as well as the previously mentioned structures for drinking water management.</p> <p><u>Inventory Data of Features Along the Roadway</u></p> <p>This is a fixed Asset Inventory – GASB 34 Compliance, which is a set of general accounting requirements for road authorities. While this is largely an internal function, there are roadway features that belong to WSDOT that are located off the state highway system and off WSDOT right-of-way.</p> <p>Most freeway ramp intersections have one set of traffic signals owned by WSDOT and the other owned by the controlling local municipality or county.</p>

	<p>These items need to be located and this data shared.</p> <p>WSDOT also makes arrangements for municipalities to maintain features on some state routes through that city. An example of this is the service agreement with the city of Federal Way to maintain drainage features along SR99 through Federal Way. WSDOT needs to track maintenance of these items.</p> <p>County and city features along the State road system may also require the same information for those agencies.</p> <p><u>Right-of-Way Feature Inventory</u></p> <p>Inventory of signs, guard rails, and drainage features are in a database that can be mapped along with the road. This helps maintenance crews and planners determine project requirements.</p> <p><u>Impervious Surfaces Analysis Data</u></p> <p>There is a need for information that facilitates the calculation of impervious surfaces along existing roadways, such as pavement type, surface area, and other related items that would assist with the impervious surface permits. Impacts to impervious surfaces due to heavy freight loads contribute to this.</p> <p>Additional data is needed that may not be part of WA-Trans. This data is covered in the section of data needs from other frameworks.</p> <p><u>Water Crossing on Roadways</u></p> <p>There is a need for information regarding locations of water crossing on roadways. This includes permanent and intermittent water, and 100 year flows of streams and rivers. This data is used for scoping and design of highway projects. This may be considered hydro data, but relates to culverts and bridges.</p> <p><u>Communicate and Analyze Transportation Features in a Watershed</u></p> <p>Environmental analysis is done frequently on the basis of a watershed, which is not always bounded by a single transportation jurisdiction. This analysis requires all transportation features to be included. This includes footpaths, bike trails, forest roads, and other less-used transportation features.</p>
<b>Audience</b>	WSDOT, Counties, Cities, Local Governments, WA Department of Ecology, WA State Department of Health, Transit Organizations, Freight Mobility Strategic Investment Board, Strategic Freight Transportation Analysis Project, WA Department of Natural Resources
<b>Business Function</b>	Public Works, Emergency Services, WA Department of Ecology, WSDOT, WA State Department of Health, Engineers, Maintenance, System Maintenance, Asset Management, Transportation Construction Projects, Transit Organizations, Freight, Environmental Permitting Organizations, Business Developers, Environmental Assessment, Permitting, Program Management, Transportation Planning
<b>GIS Function</b>	Event Location, Spatial Analysis
<b>Source Provider</b>	WSDOT Maintenance and Operations, WA State Department of Health, Pierce County, WSDOT Environmental Affairs Office, City of Seattle Department of Transportation, WSDOT Freight Strategy & Policy Office, WSDOT Design Office

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<sup>1</sup> Reference: 6, 7, 23, 32, 33, 74 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - C**

<b>Title</b>	Access to Historical Versions of WA-Trans
<b>Description</b>	<p>For comparison purposes, there is a need to store versions of the statewide transportation GIS data for each specific time period to facilitate historical modeling, comparisons, and analysis.</p> <p>Historical versions of WA-Trans will provide the ability to compare the existing network or planned networks with historical networks for the purpose of analysis.</p>
<b>Audience</b>	Metropolitan Planning Organizations, Regional Transportation Planning Organizations, WSDOT
<b>Business Function</b>	Transportation Planning, Transportation Data Collection
<b>GIS Function</b>	All
<b>Source Provider</b>	Puget Sound Regional Council

<sup>1</sup> Reference: 58 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

## 6. Cross-Governmental & Public Communication

### ***Business Need - D***

<b>Title</b>	Communication and Coordination
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Communication of survey data</li> <li>• Communication of recently completed projects along the roadway</li> <li>• Communicating improvements to the roadway</li> <li>• Coordination with Federal agencies and states</li> </ul> <p><u>Communication of Survey Data</u></p> <p>Project Engineers involved in scoping and designing a project (transportation infrastructure) would like to know what areas have been surveyed by county and local governments and other parts of WSDOT. They need access to that data to avoid resurveying the same area. This could benefit all levels of government by reducing re-surveying within a close timeframe by different offices.</p> <p><u>Communication of Recently Completed Projects Along the Roadway</u></p> <p>There is the need for data on specific projects recently completed, which could be queried by a specific time frame and location. This includes having the most updated data possible, using tracking when projects were opened for use by the public, legislature, and various agencies.</p> <p><u>Communicating Improvements to the Roadway</u></p> <p>Organizations need to be informed when another agency or developer makes improvements on the transportation system. Currently, the information is captured in a variety of ways by a variety of organizations. The need actually encompasses maintenance, accuracy, and timeliness of data.</p> <p><u>Coordination with Federal Agencies and States</u></p> <p>The US Forest Service has established a set of data standards and protocols for coordinating transportation information across agencies. These standards have been adopted by the State and Federal agencies as an exchange standard to meet their individual requirements for neighboring transportation information.</p> <p>As a business need, it is critical that any new State standards meet these interagency requirements to ensure the coordination of interagency transportation information.</p>
<b>Audience</b>	<p>WSDOT, County Governments, City Governments, Transit Organizations, E-911, Puget Sound Regional Council, Federal Highway Administration, US Geologic Service, County Road Administration Board, Freight Mobility Strategic Investment Board, Strategic Freight Transportation Analysis Project</p> <p>All Federal, State, and County partners coordinating on transportation information</p>

<b>Business Function</b>	Public Works, Transportation Construction Projects, Transit Organizations, Business Planning, Business Developers, Emergency Management and Response, Transit Organizations, Transportation Planning, Project Scoping, Project Design, Road Maintenance, Road Operations, Urban Planning Coordination of transportation information across State and Federal systems
<b>GIS Function</b>	Mapping, Event Location, and various other
<b>Source Provider</b>	WSDOT Olympic Region Lacey Project Engineers Office, WSDOT Urban Corridors Office, City of Seattle Department of Transportation, WSDOT Olympic Region Highway and Local Programs Engineer, WSDOT Transportation Data Office, City of Seattle Department of Transportation, WSDOT Freight Strategy & Policy Office, US Forest Service

<sup>1</sup> Reference: 1, 4, 11, 101 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - E**

<b>Title</b>	Statewide Base Map to Use in Communication
<b>Description</b>	A need exists for a statewide base map that extends beyond jurisdictional boundaries to illustrate scenic byways and provide communication for funding with the legislature, local partners, and the Federal Government.
<b>Audience</b>	WSDOT, Counties, Cities, Puget Sound Regional Council
<b>Business Function</b>	Planning, Program Management, Public Communications
<b>GIS Function</b>	Mapping, Spatial Analysis, Interagency Functions
<b>Source Provider</b>	WSDOT Olympic Region Highway and Local Programs Engineer, WSDOT Program Management, WSDOT Rail Office

<sup>1</sup> Reference: 12 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - F**

<b>Title</b>	Tracking Activities Along Transportation Network
<b>Description</b>	This need talks about tracking activities along the transportation network by organizations without jurisdictional responsibility. There is a specific need to know "when and where utilities plan to work so we can combine paving efforts." This can be extended into known plans regarding work on or alongside any transportation feature not being performed by the organization that generally maintains the feature.
<b>Audience</b>	WSDOT, Counties, Cities
<b>Business Function</b>	Public Works, Maintenance and Operations Organizations



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<b>GIS Function</b>	Event Location
<b>Source Provider</b>	WSDOT Olympic Region Highway and Local Programs Engineer

<sup>1</sup> Reference: 10 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - G**

<b>Title</b>	County Bridge Locations and Bridge Data Sharing For details, please refer to Business Need A in Section 5, "Asset Management".
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### **Business Need - H**

<b>Title</b>	Work with HPMS / FC Replacement
<b>Description</b>	<p>The Highway Performance Monitoring System (HPMS) and Functional Classification (FC) Systems are maintained by WSDOT for the Federal Highway Administration (FHWA). This is a database of all miles of public roads in the state. It is the basis for determining eligibility for Federal-aid funding for functional classification modifications and updates. It is also the basis for designation of the National Highway System.</p> <p>WSDOT is mandated to maintain data about all roads in both rural and urban areas, and determine the functional usage of existing roads and streets. These systems get data from many of the partners that WA-Trans will. Aligning these systems with WA-Trans would prevent unnecessary duplication of data and effort.</p> <p>Collecting the same data once would facilitate sharing from local governments. There is an effort to replace them with a single system, and this is where alignment might best be facilitated. This effort wants a functional class map that shows all roads and road miles included in the functional classifications sent to the Federal Government.</p> <p>It is hoped that WA-Trans and HPMS / FC replacement will facilitate the exchange of road information between cities, counties, and the State.</p> <p><b>Note:</b> For related information, please refer to Business Need WW in Section 12, "Maintenance of Transportation Infrastructure".</p>
<b>Audience</b>	WSDOT, Counties, Cities, Federal Highway Administration, County Road Administration Board, Metropolitan Planning Organizations, Regional Transportation Planning Organizations, Strategic Freight Transportation Analysis Project, Transportation Improvement Board
<b>Business Function</b>	Government Transportation Organizations
<b>GIS Function</b>	Event Location, Mapping, Spatial Analysis, Interagency Functions
<b>Source Provider</b>	WSDOT Transportation Data Office, City of Seattle Department of Transportation

<sup>1</sup> Reference: 21 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - I**

<b>Title</b>	Collision Data and Analysis
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Facilitate collision analysis using the transportation system</li> <li>• Providing collision data to local governments</li> </ul> <p><u>Facilitate Collision Analysis using the Transportation System</u></p> <p>There is a need to be able to analyze a report on roadway collisions based upon the whole roadway system surrounding the incidents. This includes off and on ramps, roads signals, and structures connecting to the roadway. It may involve roads and infrastructure outside of a specific jurisdiction. It would be useful if the data for freight vehicles could be available separately. Critical to this function is accurate identification of high collision locations.</p> <p><u>Providing Collision Data to Local Governments</u></p> <p>The WSDOT Transportation Data Office provides traffic accident and collision data to counties. They also provide history at intersections of local and county roads with state routes. They provide data to MPOs and RTPOs for their models. All of this sharing could be facilitated through the transportation framework. Cities need this data located on a map.</p>
<b>Audience</b>	WSDOT, Metropolitan Planning Organizations, Regional Transportation Planning Organizations, Public Works, Emergency Management, Federal Highway Administration, Transit Organizations, Counties, Cities, Puget Sound Regional Council, Strategic Freight Transportation Analysis Project
<b>Business Function</b>	Transportation Planning, Emergency Response, Transit Organizations, Public Works
<b>GIS Function</b>	
<b>Source Provider</b>	WSDOT Olympic Region Highway and Local Programs Engineer; WSDOT Freight Strategy & Policy Office, WSDOT Transportation Data Office, City of Seattle Department of Transportation

<sup>1</sup> Reference: 8, 20 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - J**

<b>Title</b>	Public Access to Records
<b>Description</b>	County Road Authorities are statutorily required to keep records of all roads within their jurisdiction and to provide those records to the public. WA-Trans data can be used in conjunction with other data and online systems to support this function.
<b>Audience</b>	Counties
<b>Business Function</b>	County Engineers
<b>GIS Function</b>	Mapping
<b>Source Provider</b>	Interagency Function, Public Interface

<sup>1</sup> Reference: 40 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - K**

<b>Title</b>	Communicating Traffic Flow, Project Plans, and All Roadway Activity
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Mapping, Analyzing and Communicating Traffic Flow</li> <li>• Communicating Project Plans with Public, Various Road Authorities, and Other Stakeholders</li> <li>• Information about All Roadway Activity to Answer Customer Calls</li> </ul> <p><u>Mapping, Analyzing and Communicating Traffic Flow</u></p> <p>WSDOT has an application on the Internet called the “Puget Sound Traffic Flow Map”, which gets heavy usage. It would be very good to expand the boundaries of this beyond the State Highway System and show other congestion. The drivers don’t care who is responsible for the road. They just want to know where to avoid the congestion. Specific information about freight flows would be very useful to freight and freight planning.</p> <p><u>Communicating Project Plans with Public, Various Road Authorities, and Other Stakeholders</u></p> <p>WSDOT Urban Corridors projects have co-lead agencies. The leads are jointly responsible for the project, which is multi-modal. They are also sharing data with differing levels of government and different modes. Generally, hiring a contractor who collects the data for scoping does data collection and then the data is thrown away. There is no place to update the data. Each project costs between \$15,000 and \$20,000.</p> <p>Additionally, there is a need to share Transportation construction project plans with the public and the developers. Providing maps with the data and showing it in relation to where they live/work has the most impact.</p>

	<p><u>Information about All Roadway Activity to Answer Customer Calls</u></p> <p>Many taxpayers and others with questions or comments about roads don't know about local transportation organization, but they do call WSDOT or vice versa. It would be very helpful to have data about roads closing, contacts in other organizations, roadways, and features for answering questions without regard to jurisdiction.</p>
<b>Audience</b>	<p>WSDOT, Counties, Cities, Kitsap Transit, Community Transit, Strategic Freight Transportation Analysis Project</p> <p>WSDOT, Counties, Cities, Puget Sound Regional Council, Kitsap Transit, Community Transit</p> <p>WSDOT, Counties, Cities</p>
<b>Business Function</b>	<p>Public</p> <p>Transportation Planning, Public Works, Public Communications, Transit, Program Management</p> <p>Public Communications, Chamber of Commerce, Counties, Cities, WSDOT, WA State Patrol</p>
<b>GIS Function</b>	
<b>Source Provider</b>	<p>WSDOT IT (TRAC) Office, City of Seattle Department of Transportation, Strategic Freight Transportation Analysis Project, WSDOT Freight Strategy &amp; Policy Office, WSDOT Urban Corridors, WSDOT Program Management, WSDOT Maintenance and Operations</p>

<sup>1</sup> Reference: 26, 30, 35 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - L**

<b>Title</b>	Notification of Ferry Neighbors
<b>Description</b>	WSF needs address and routing information for businesses and homes around ferry terminals for notification purposes when there is closure, noise, or some special transportation issue.
<b>Audience</b>	WSDOT, Counties, Cities, Emergency Management, E-911
<b>Business Function</b>	Washington State Ferries, Public Works, Departments of Transportation, Emergency Management, E-911
<b>GIS Function</b>	
<b>Source Provider</b>	WSDOT Ferry Terminal Engineering, Seattle Department of Transportation

<sup>1</sup> Reference: 29 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

## 7. Environmental Analysis

### ***Business Need - M***

<b>Title</b>	Fisheries Information and Related Road / Hydrography Data
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Tracking fisheries information related to road / water structure</li> <li>• Supporting work on fish and related hydrography to roads</li> </ul> <p><u>Tracking Fisheries Information Related to Road / Water Structure</u></p> <p>The US Forest Service identified a business requirement for tracking fisheries information related to road / water structures. This information relates to fish passage regarding roads structures and stream intersections, and would be tied to dams, culverts, crossings, etc.</p> <p>The decision involved several components, but the fact that the transportation data would be more accurate provided the best reason to hold this cross-coverage information there.</p> <p>WA-Trans, if properly populated, could include a location of potential fish passage barriers like culverts.</p> <p><u>Supporting Work on Fish and Related Hydrography to Roads</u></p> <p>Maintenance of fish species involves the use of road data and hydrography data. Here are some examples of how road data helps this work:</p> <ul style="list-style-type: none"> <li>• Fish passage for resident and anadromous species is influenced by bridge and culvert design issues.</li> <li>• Fish spawning can be affected by sedimentation or other road related issues. <ul style="list-style-type: none"> <li>○ Poorly designed roadways or crossings can cause sedimentation, which covers nesting gravels with fine silts, making them unusable by the fish.</li> </ul> </li> </ul> <p>The identification of all impervious surfaces (i.e., roads, rails, trails, etc.) can be used to assist in analysis of the presence of sediment and materials. This is related to Analysis Along Roadway and Transportation Features.</p>
<b>Audience</b>	US Forest Service, US Department of Interior, US Bureau of Land Management, National Parks Service, WA Dept. of Natural Resources (DNR), WA State Parks, WSDOT, Public Works and Roads Departments
<b>Business Function</b>	Fish Management, Hatcheries, Environmental Assessment, Public Lands Management Road Design, Construction and Maintenance
<b>GIS Function</b>	
<b>Source Provider</b>	US Forest Service

<sup>1</sup> Reference: 57, 84 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - N**

<b>Title</b>	Habitat Analysis and Wildlife Protection
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Communicate and analyze habitat along the roadway</li> <li>• Use road and road feature information in the effort to protect wildlife</li> </ul> <p><u>Communicate and Analyze Habitat Along Roadway</u></p> <p>There is a need to evaluate the evolution of the habitat relationship with the roadways, "habitat connectivity" infrastructure.</p> <p><u>Use Road and Road Feature Information in the Effort to Protect Wildlife</u></p> <p>Road information can be useful in many ways for wildlife protection:</p> <ul style="list-style-type: none"> <li>• Spotted Owl management, which requires an understanding of road density issues, including the miles of road per square mile of land</li> <li>• Road densities influence deer and elk hunting. The more roads in an area, the more likely it is a hunter will succeed in killing a deer or elk. Deer, elk, and numerous other animals are killed in crossing roads, which affects the population dynamics</li> <li>• Slugs, snails, and other small critters have a hard time crossing roads; hence roads can present a barrier to some species</li> </ul> <p>Fragmentation of habitat is influenced by roads in several ways:</p> <ul style="list-style-type: none"> <li>• The road can fragment habitat for some species.</li> <li>• Roads are required to access timber sales, which affects the habitat for some species like the spotted owl.</li> </ul>
<b>Audience</b>	WSDOT, Counties, Cities, WA Department of Natural Resources, US Forest Service, US Bureau of Land Management, National Parks Service, WA State Parks
<b>Business Function</b>	Environmental Assessment, Permitting, Transportation Construction programs, Program Management, Transportation Planning, Public Lands Management
<b>GIS Function</b>	
<b>Source Provider</b>	WSDOT Environmental Affairs Office, US Forest Service

<sup>1</sup> Reference: 24, 83 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

## 8. Freight, Rail, and Passenger Mobility Planning and Management

### ***Business Need - O***

<b>Title</b>	Freight, Rail, Trip Planning, Chokepoints, and Weight Information
<b>Description</b>	<p>This topic presents the business needs related to freight, rail, passenger mobility trip planner, freight chokepoints, international border crossing delay, truck weight information, and other freight data.</p> <p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Identification and analysis of freight chokepoints</li> <li>• A freight trip planner</li> <li>• International border crossing delay for commercial vehicles</li> <li>• Truck weight information and other freight data</li> </ul> <p><u>Freight, Rail, and Passenger Trip Planner</u></p> <p>Using the WSDOT Public Transportation Office "Travel Options" effort as a model, a freight trip planner could be developed. The purpose of this tool would be to:</p> <ul style="list-style-type: none"> <li>• Enable truckers, shippers, haulers, delivery drivers, etc. to access information about freight routing, weight restricted areas, avoiding congestion, location of services, intermodal transfer sites, weigh stations, etc.</li> <li>• A link to the Motor Carrier Services website would provide additional guidance on truck permits and licenses.</li> <li>• This data could also be provided to 3<sup>rd</sup> party systems already used by freight companies.</li> <li>• Other truck information collected by the Commercial Vehicle Information System and Network (CVISN, a WSDOT application) and geocoded</li> </ul> <p><u>Identification and Analysis of Freight Chokepoints</u></p> <p>Freight chokepoints can be defined as areas where trucks routinely encounter delay due to traffic or road conditions (excluding border crossing, which is handled separately).</p> <p>Delays in travel time result in substantial cost increases for freight transport. It is impossible to focus on correcting bottlenecks and chokepoints until there is data showing where they are and how severe they are.</p> <p><u>International Border Crossing Delay for Commercial Vehicles</u></p> <p>International border crossing delay is caused by several factors, such as:</p> <ul style="list-style-type: none"> <li>• Truck volumes</li> <li>• Checkpoint staffing and hours of operation</li> <li>• Volume of other vehicle types</li> <li>• Time needed for clearing customs</li> </ul>

	<ul style="list-style-type: none"> <li>Increased security measures</li> </ul> <p>Knowing the average wait and processing times, truck volumes, border crossing, and alternative route information can benefit both short and long term freight planning.</p> <p><u>CVISN, Weight-in Motion, and Weight Station Information</u></p> <p>The following information would be useful in identifying patterns in freight flows:</p> <ul style="list-style-type: none"> <li>Weight station locations and use</li> <li>Weight-in-motion locations and use</li> <li>Other truck information collected by the Commercial Vehicle Information System and Network (CVISN, a WSDOT application) and geocoded</li> </ul>
<b>Audience</b>	WSDOT, Strategic Freight Transportation Analysis Project, WA State Transportation Center at U of W (TRAC), MPOs & RTPOs, Freight Interests, Washington State Patrol (WSP), Strategic Freight Transportation Analysis Project, WA State Transportation Center at U of W (TRAC), MPOs & RTPOs, Freight Mobility Strategic Investment Board
<b>Business Function</b>	Freight, Transportation Planning, Private Industry (Business, Manufacturing, Freight Transfer, Trucking), Ports, Freight Policy, State Patrol, Transportation Planning, Strategic Freight Transportation Analysis Project
<b>GIS Function</b>	Routing, Dispatch, Event Location, Spatial Analysis
<b>Source Provider</b>	WSDOT Freight Strategy & Policy Office, WA State Patrol, USDOT / Homeland Security, B.C. Ministry of Transportation, International Mobility and Transportation Coalition (IMTC), Eastern Border Transportation Council via WSDOT Freight Strategy and Policy Office / Analysis Project

<sup>1</sup> Reference: 55, 95, 96, 97, 100 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - P**

<b>Title</b>	Ferry Schedules Coordination with Traffic Management
<b>Description</b>	The City of Seattle Department of Transportation currently has some coordination of traffic lights with ferries arrival on Coleman Dock. It would be useful to expand this to all ferry routes and have this integrated into any routing done in WA-Trans.
<b>Audience</b>	WSDOT, Counties, Cities, Emergency Management, E-911
<b>Business Function</b>	Washington State Ferries, Public Works, Departments of Transportation, Emergency Management, E-911
<b>GIS Function</b>	
<b>Source Provider</b>	WSDOT Ferry Terminal Engineering Seattle Department of Transportation



<sup>1</sup> Reference: 41 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

## **Business Need - Q**

<b>Title</b>	Freight Management, Analysis, Operations, and Transportation Updates
<b>Description</b>	<p>This topic presents the business needs for freight management, analysis, terminal operations, hub location, freight goods, and transportation system updates.</p> <p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Navigable waterways and port facilities including freshwater ports</li> <li>• Geocoded freight truck flows</li> <li>• Freight terminal operations</li> <li>• Location of freight hubs</li> <li>• Freight access and freight exchange at marine deep-water ports</li> <li>• Freight goods and transportation system updates</li> </ul> <p><u>Navigable Waterways and Port Facilities Including Freshwater Ports</u></p> <p>Considerable freight traffic moves throughout Washington's navigable waterways (Columbia and Snake River system, ocean ports in Seattle and Tacoma) complementing Washington's efficient multi-modal transportation system (truck, rail, barge). Much of this freight — especially for traffic along the Snake and Columbia River System — is traffic that would otherwise be shipped via rail or truck when barge access is constrained from lock maintenance or river draw downs, thus adding to an already constrained highway system.</p> <p>WSDOT planners and freight policy analysts could benefit from the analytical capabilities of GIS coverage of all the state's navigable waterways, locks, and port facilities. This would be especially useful identifying shipper costs and highway impacts due to river passage restrictions.</p> <p><u>Geocoded Freight Truck Flows</u></p> <p>A statewide freight origin and destination truck survey was conducted in 1993-1994 and again in 2002 at 30 selected sites across the state. Detailed information concerning individual truck-trips, commodities, truck configurations, origins, destinations, and specific routes for all highways will be incorporated into a GIS and available for highway planners, modelers, and policy analysts.</p> <p><u>Freight Access and Freight Exchange at Marine Deep-Water Ports</u></p> <p>The ports of Tacoma and Seattle combined form one of the largest cargo container terminal operations on North America's west coast. Access to and from the Washington ports is through heavily congested Puget Sound urban areas. Information is needed about the following:</p> <ul style="list-style-type: none"> <li>• Port import / export volumes</li> <li>• Commodity origin / destination, content, and value</li> <li>• Terminal logistics and hours of operation</li> <li>• Truck / rail access routing</li> </ul> <p>This information is extremely useful in transportation planning for freight mobility</p>

	<p>on roadways, efficient intermodal transfers, and anticipating future growth needs.</p> <p>Highway planners, freight policy analysts, counties, cities, and other transportation and economic development interests utilize this information.</p> <p><u>Location of Freight Hubs</u></p> <p>Freight traffic is often concentrated at points of origin, destination, or transfer. As a consequence, state and local roads often become heavily traveled defacto freight routes.</p> <p>Planning for adequate freight transportation capacity could be greatly enhanced by location of information for the following:</p> <ul style="list-style-type: none"> <li>• Major industry manufacturing and distribution centers</li> <li>• Agricultural product processing and transfer sites</li> <li>• Intermodal transfer stations (including air cargo hubs) and commercial truck stops in relationships to roads, rails, and other transportation features</li> </ul> <p><u>Freight Goods and Transportation System Updates</u></p> <p>WSDOT must comply with Federal Highway Administration (FHWA) requirements under the Highway Performance Monitoring System and state legislation (RCW 47.05.021). It must identify Washington's freight and goods network and the usage of this network over time. Truck freight data is captured for state highways (1,450 count locations), county roads (CRAB), and city streets (AWC). It is compiled to develop the state level freight planning and forecasting model framework, providing the different tonnage classifications (T1-T5) for all highways.</p> <p>Highway planners, freight policy analysts, counties, cities, and other transportation and economic development interests utilize this information.</p>
<b>Audience</b>	WSDOT, Strategic Freight Transportation Analysis Project, Freight Mobility Strategic Investment Board, MPOs and RTPOs
<b>Business Function</b>	Transportation Planning, Freight Policy, Strategic Freight Transportation Analysis Project, Ports, Coast Guard, Railroads, Railroads, Airports
<b>GIS Function</b>	Event Location, Routing, and Dispatch
<b>Source Provider</b>	WSDOT Freight Strategy & Policy Office, Strategic Freight Transportation Analysis (SFTA), Columbia and Snake River System projects, Community Trade & Economic Development

<sup>1</sup> Reference: 53, 54, 98, 99 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - R**

<b>Title</b>	Network Analysis Support for Moving Forest Products
<b>Description</b>	WA-Trans needs to support network analysis regarding the movement of forest products. Network analysis can be used to understand the efficiency of moving forest products around. Timber sometimes is moved long distances and haul routes are sensitive to recreation and other issues.
<b>Audience</b>	US Forest Service, US Bureau of Land Management, WA Dept. of Natural Resources (DNR)
<b>Business Function</b>	Public Lands Management, Private Timber Companies
<b>GIS Function</b>	Routing and Dispatch
<b>Source Provider</b>	US Forest Service

<sup>1</sup> Reference: 86 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - S**

<b>Title</b>	Railroad Line Data, Crossing Safety, and Safety Inspections
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Railroad line data</li> <li>• Crossing safety</li> <li>• General railroad safety inspections</li> </ul> <p><u>Railroad Line Data</u></p> <p>There is a need for a variety of information regarding railroad lines. This includes:</p> <ul style="list-style-type: none"> <li>• Track locations</li> <li>• Where tracks intersect roads</li> <li>• Type of crossing controls at intersections</li> <li>• Safety rating of intersections</li> <li>• Whether the track is abandoned or active</li> <li>• Location of rail bridges, tunnels and potential mud slides locations along railways</li> <li>• Ownership of rail lines (specific tracks)</li> <li>• Where tracks intersect streams (BOC)</li> <li>• Location of Inter-modal Loading Facilities (Truck-Rail, or Rail-Barge)</li> <li>• Amount and general type of freight carried per segment</li> <li>• Average trip time for freight trains on various segments</li> </ul>

	<p><u>Crossing Safety</u></p> <p>Using information about specific characteristics regarding grade crossings, roadway characteristics, traffic counts, and train operations, WUTC and WSDOT Staff are able to conduct accident prediction and other hazard analysis for resource allocation and safety improvements. The data will also assist field inspectors to review crossings for safety improvements including signal upgrades, crossing surface needs, and related regulatory duties. Crossing defects can be tracked and railroad company repair performance can be analyzed.</p> <p><u>General Railroad Safety Inspections</u></p> <p>Using information about rail line locations, commodities hauled, train counts, and other operational information, inspections involving hazardous materials, track, and operation practices can be targeted, planned, and optimized. Accidents and HAZMAT releases can be tracked to identify safety problems.</p>
<b>Audience</b>	WSDOT, Counties, Cities, E-911, Puget Sound Regional Council, Bureau of Census, Strategic Freight Transportation Analysis Project, Utilities and Transportation Commission, State Government, Local Government
<b>Business Function</b>	Public Works, Transportation Construction Projects, Planning, E-911, WSDOT Bridge Preservation Office, Metropolitan Planning Organizations, Regional Transportation Planning Organizations, Emergency Management, WSDOT Transportation Data Office, WSDOT Rail Office, Safety Analysis, Inspection Priorities, Resource Allocation, Compliance Actions, Hazard Reduction
<b>GIS Function</b>	Mapping, Event Location, Analysis
<b>Source Provider</b>	WSDOT Olympic Region Lacey Project Engineers Office, WSDOT Rail Office, WSDOT Bridge Preservation Office, Strategic Freight Transportation Analysis Project; WSDOT Freight Strategy & Policy Office, WA Utilities and Transportation Commission

<sup>1</sup> Reference: 3, 45, 46 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

## 9. Geocoding / Event Location

### ***Business Need - T***

<b>Title</b>	Event Location and Geocoding / Address Matching
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Event location analysis with geocoding / address matching and route / milepost</li> <li>• Use of GPS and other event location methods</li> <li>• Event location-based maps</li> </ul> <p><u>Event Location Analysis and Mapping (Geocoding / Address Matching)</u></p> <p>Various event databases are maintained that reference street addresses or road number and milepost. Mapping and analysis of these events is critical to management of transportation resources.</p> <p>A fundamental use of the transportation network will be location determination by address. Virtually every agency / party employing GIS technology has some need to geocode data to a street address. Many address data structures exist. A viable and widely employed model might be that used by the U.S. Census Bureau for TIGER.</p> <p><u>Event Location-based Maps</u></p> <p>The GIS geocoding function is used to map various data sets such as businesses, events, business licenses, jurors, crimes, and complaints. The road centerline file with address ranges is utilized as the base map and for the geocoding function.</p>
<b>Audience</b>	WSDOT, Counties, Cities, County Road Administration Board, Strategic Freight Transportation Analysis Project, Public Access, County and Local Governments
<b>Business Function</b>	Public Works, County Engineers, Transportation Construction Projects, Project Scoping, Project Design, E-911, Emergency Management, Law Enforcement
<b>GIS Function</b>	Event Location
<b>Source Provider</b>	Pierce County and various other counties

<sup>1</sup> Reference: 39, 82 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### ***Business Need - U***

<b>Title</b>	<p>County Bridge Locations and Bridge Data Sharing</p> <p>For details, please refer to Business Need A in Section 5, "Asset Management".</p>
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**Business Need - V**

<b>Title</b>	AVL X, Y Coordinate Mapping
<b>Description</b>	<p>Automatic Vehicle Location (AVL) data provided by vehicles equipped with AVL technology can be combined with WA-Trans data to provide support in the following areas:</p> <ul style="list-style-type: none"> <li>• Fleet Management <ul style="list-style-type: none"> <li>○ Determining the most efficient routes and vehicle use</li> <li>○ Determining actual delivery costs</li> <li>○ Checking employee on the road compliance</li> </ul> </li> <li>• Locating vehicles in an emergency <ul style="list-style-type: none"> <li>○ Finding the X, Y coordinate</li> <li>○ Determining an address and dispatching emergency vehicles to the site using shortest path. This requires WA-Trans to have street centerline, address geocoding, and a dispatch network. This is also useful for fire response in dispatching fire trucks.</li> </ul> </li> </ul> <p>Homeland Security can use this technology to track vehicles that might contain explosive or toxic materials to make sure they are being used properly.</p>
<b>Audience</b>	Local Public Works Depts., Ecology, Health Departments, WA State Patrol, Emergency Management Division, WA Emergency Operations Center, Local Public Safety Answering Points (PSAPs), Local Law Enforcement, WSDOT, National Imagery and Mapping Agency (NIMA)
<b>Business Function</b>	Routing, Delivery Service, Permit Enforcement, Permit Issuance, Trash Collection, Emergency Management Vehicle Tracking, Law Enforcement Vehicle Tracking, Freight Management, and more
<b>GIS Function</b>	Event Location
<b>Source Provider</b>	WA State Dept. of Military Emergency Management Division, Spokane County Fire Districts

<sup>1</sup> Reference: 93 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - W**

<b>Title</b>	County Address Maintenance, Lookup, and Address Locations (Geocoding)
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• County addressing</li> <li>• Address lookup</li> <li>• Location of specific addresses (geocoding)</li> </ul> <p><u>County Addressing</u></p> <p>The County addressor maintains the centerline and address information for the county to provide valid address information for other departments and citizens.</p> <p><u>Address Lookup</u></p> <p>Many county departments utilize the GIS system to view information at an address. The address is geocoded to the road centerline / address file. Once the address is located, other data themes and data sets are viewed. This is utilized by all county departments.</p> <p><u>Location of Specific Addresses (Geocoding)</u></p> <p>Additionally, the WUTC-regulated companies can provide solid waste services within specific geographic areas. The location of a specific address is needed to determine which company has the rights to service at a particular location.</p>
<b>Audience</b>	State, County, and Local Governments
<b>Business Function</b>	Consumer Affairs, Public Affairs, Emergency Management, Law Enforcement, Public Utilities, Regulation, Public Health and Safety, Customer Notice, Compliance, Accounting, Auditing, Policy, Attribute Maintenance, Event Location
<b>GIS Function</b>	Event Location
<b>Source Provider</b>	Pierce County, WA Utilities and Transportation Commission Solid Waste Section

<sup>1</sup> Reference: 49, 67, 68 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - X**

<b>Title</b>	<p>Statewide Base Map to Use in Communication</p> <p>For details, please refer to Business Need E in Section 6, "Cross-Governmental &amp; Public Communication".</p>
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**Business Need - Y**

<b>Title</b>	Routing
<b>Description</b>	<p>There is a need to evaluate and map alternate routes for a variety of functions on all roads including county, city, state, and private roads. This includes the need to buffer an affected area for analysis. This would be used for emergency management, traffic control, homeland security, freight congestion, infrastructure impact analysis, and transportation construction projects.</p> <p>There is also a need for routes to reduce freight congestion.</p> <p>Additionally, there is a need to communicate alternate routes to the public through mapping and other methods. WA-Trans will support routing across jurisdictions and <i>transportation modes</i> (i.e., a method for providing transportation, such as railroad, ferry, bus, pedestrian, etc.).</p>
<b>Audience</b>	WSDOT, Counties, Cities, E-911, Freight Mobility Strategic Investment Board, Strategic Freight Transportation Analysis Project
<b>Business Function</b>	Public Works, Transportation Construction Projects, Emergency Management, Transit Organizations, Military, Public Utilities, Freight
<b>GIS Function</b>	Spatial Analysis, Event Location
<b>Source Provider</b>	WSDOT Olympic Region Lacey Project Engineers Office, WSDOT Emergency Response, WSDOT Olympic Region Highway and Local Programs Engineer, WSDOT Ferry Terminal Engineering, City of Seattle Department of Transportation, Strategic Freight Transportation Analysis Project

<sup>1</sup> Reference: 5 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - Z**

<b>Title</b>	Lifeline Expansion, E-911 and Emergency Events Mapping
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Expansion of lifelines statewide</li> <li>• Phase II E-911 cell phone X, Y coordinate mapping</li> <li>• Emergency management event mapping</li> </ul> <p><u>Expansion of Lifelines Statewide</u></p> <p>King County Emergency Management has developed a GIS in support of "lifelines". A lifeline is a combination of critical facilities (hospitals, schools, etc.) connected by routes, which can be repaired quickly (within 24 hours) with local things. The goal is that all parties have the same priorities after an emergency event. They need to know where trains and ferries are as part of this effort.</p> <p><u>Phase II E-911 Cell Phone X, Y Coordinate Mapping</u></p> <p>For maximum benefit to the local E-911 Call Centers, that is, Public Safety Answering Points (PSAP), the implementation of FCC's Phase II Wireless</p>



	<p>regulations will require automatic GIS mapping capabilities within these centers. This is to enable mapping of the actual cell phone location X, Y coordinates that are going to be generated by these calls.</p> <p>This requires that WA-Trans support the following:</p> <ol style="list-style-type: none"> <li>1. Address geocoding</li> <li>2. Linkage of X, Y coordinates to other nearby GIS features (for example, road address segments, dispatch units, beat units, etc.)</li> <li>3. The ability to geocode to digital orthophotography for rural and wilderness related cell phone calls</li> </ol> <p><u>Emergency Management Event Mapping</u></p> <p>There is a need for mapping of emergency events that could be a point location at an address, a road segment that is closed, or an area that is flooded. The road centerline file is used as a backdrop to plan response and recovery.</p>
<b>Audience</b>	WSDOT, Counties, Cities, Local Governments, Emergency Management, E-911, WA State Patrol, WA Military Department Emergency Management Division (EMD), Emergency Operations Center, Local Public Safety Answering Points (PSAPs), Local Law Enforcement, National Imagery and Mapping Agency (NIMA)
<b>Business Function</b>	Emergency Management Organizations, E-911, Emergency Route Planning, Counties, Cities, Police, Fire, Public Safety Answering Points, Law Enforcement, Fire Response, Homeland Security
<b>GIS Function</b>	Event Location, Map Production, Spatial Analysis
<b>Source Provider</b>	King County Emergency Management, WA Military Department Emergency Management Division (EMD), Spokane County Fire Districts, Pierce County

<sup>1</sup> Reference: 42, 81, 92 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - AA**

<b>Title</b>	Address Geocoding of Crime Incidents
<b>Description</b>	<p>The Sheriff's department routinely maps crime incidents to:</p> <ul style="list-style-type: none"> <li>• Monitor changes in crime patterns</li> <li>• Estimate the resources needed for particular areas</li> </ul>
<b>Audience</b>	County and Local Governments
<b>Business Function</b>	Analyze Crime Patterns, Estimation of Resources
<b>GIS Function</b>	
<b>Source Provider</b>	Pierce County

<sup>1</sup> Reference: 65 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - BB**

<b>Title</b>	Support School and Daycare Base Map Data for Law Enforcement Purposes
<b>Description</b>	<p>There is a need to support efforts in providing Law Enforcement officials with accurate and up-to-date transportation base map data containing the location of schools, daycares, etc. The purpose is so that officials can use this data to help determine safe and legal locations when returning sexual predators to the community and halfway houses. The base map could also be used for various other law enforcement type location applications.</p> <p>The Washington State Department of Corrections must approve the appropriate house locations for sexual predators. Data on school and daycare locations is obtained from the Washington State Department of Health and the Washington Department of Social and Health Services.</p>
<b>Audience</b>	WA State Department of Corrections, other Law Enforcement
<b>Business Function</b>	Social Services, Law Enforcement
<b>GIS Function</b>	Event Location, Mapping, Spatial Analysis
<b>Source Provider</b>	WA State Department of Corrections, WA State Department of Health, WA Department of Social and Health Services

<sup>1</sup> Reference: 103 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - CC**

<b>Title</b>	Trespass Reduction
<b>Description</b>	Using transportation system information including track location and operations, trespass accidents can be plotted and areas targeted for engineering, enforcement, and education efforts.
<b>Audience</b>	State Government, Local Government
<b>Business Function</b>	Safety Analysis, Hazard Reduction
<b>GIS Function</b>	
<b>Source Provider</b>	WA Utilities and Transportation Commission

<sup>1</sup> Reference: 47 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - DD**

<b>Title</b>	Accurate Centerline and Right-of-Way Line Work
<b>Description</b>	The WUTC issues Certificates of Public Convenience and Necessity. These certificates are a property right. They are described in metes and bounds, and

	roads may be the boundary used in the legal description. It is very important that the location of the line work be accurate.
<b>Audience</b>	State Government, Local Government
<b>Business Function</b>	Property Right descriptions of franchise service areas.
<b>GIS Function</b>	
<b>Source Provider</b>	WA Utilities and Transportation Commission Solid Waste Section

<sup>1</sup> Reference: 48 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - EE**

<b>Title</b>	Provide Utility Services at a Specific Location (Geocoding)
<b>Description</b>	<p>The WUTC regulates multiple utility and transportation companies. Consumers often inquire about which companies provide services where they live. A geocoded street layer would allow consumers to get answers to those questions. A variety of utility information could be included.</p> <p>The Tulalip Tribe would specifically like water supply and wastewater information geocoded. The Tulalip Utilities Authority regulates the water supply, treatment, and transmission derived from its governmental status as a federally recognized Indian Tribe, organized pursuant to Section 16 of the Indian Reorganization Act of 1934 and as provided in Article VI Section I of the Tribes duly adopted Constitution.</p> <p>Consumer knowledge about water and wastewater services is necessary for planned development, whether it be the Tulalip Tribes or a private landowner on fee simple lands.</p> <p>Location of fire hydrants of tribal utility services should be identified for public safety decision makers.</p>
<b>Audience</b>	State Government, Local Government, The Tulalip Tribes
<b>Business Function</b>	Public
<b>GIS Function</b>	Event Location
<b>Source Provider</b>	WA Utilities and Transportation Commission Solid Waste Section, Tulalip Utilities Authority and Tulalip Tribes' Community Development Department

<sup>1</sup> Reference: 50 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - FF**

<b>Title</b>	Traffic Count Locations
<b>Description</b>	This is a map of the traffic count locations with a link to the data records on those counts. The data set is then analyzed to show changes in traffic volumes

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	versus estimated volumes.
<b>Audience</b>	County and Local Governments
<b>Business Function</b>	Analysis — Level of Service
<b>GIS Function</b>	Event Location
<b>Source Provider</b>	Pierce County

<sup>1</sup> Reference: 70 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - GG**

<b>Title</b>	Vegetation Spray Areas
<b>Description</b>	There is a need for a map that shows areas to spray and areas not to spray. This information is based on road maintenance records and can be mapped to the centerline file.
<b>Audience</b>	County and Local Governments
<b>Business Function</b>	Right-of-Way Maintenance
<b>GIS Function</b>	
<b>Source Provider</b>	Pierce County

<sup>1</sup> Reference: 76 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

## 10. Homeland Security / Emergency Management and Response

### ***Business Need - HH***

<b>Title</b>	Emergency Management Event Mapping
<b>Description</b>	There is a need for mapping of emergency events that could be a point location at an address, a road segment that is closed, or an area that is flooded. The road centerline file is used as a backdrop to plan response and recovery.
<b>Audience</b>	County and Local Governments
<b>Business Function</b>	Emergency Route Planning
<b>GIS Function</b>	Event Location, Mapping, Spatial Analysis
<b>Source Provider</b>	Pierce County

<sup>1</sup> Reference: 81 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### ***Business Need - II***

<b>Title</b>	Lifeline Expansion, E-911 and Emergency Events Mapping For details, please refer to Business Need Z in Section 9, "Geocoding / Event Location".
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### ***Business Need - JJ***

<b>Title</b>	Development and Maintenance of Street Names for Emergency and Non-emergency Navigation
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Street names in the roads layer</li> <li>• Development and maintenance of street names</li> <li>• Street names on the Tulalip Indian Reservation</li> </ul> <p><u>Street Names in the Roads Layer</u></p> <p>The WUTC issues Certificates of Public Convenience and Necessity. These certificates are a property right. They are described in metes and bounds, and roads may be the boundary used in the legal description. We need street names in the roads layer so we can describe the boundary accurately. The Tulalip Tribes Community Development Department needs to consolidate street names and provide street names to unnamed roads.</p> <p><u>Street Names on the Tulalip Indian Reservation</u></p> <p>Several streets within the exterior boundaries of the Tulalip Indian Reservation</p>

	<p>have more than one name:</p> <ul style="list-style-type: none"> <li>• They have a numeric name that provides ease for navigation.</li> <li>• Some also have a second name that is a historic name.</li> <li>• Still others have no name, but have residential addresses designating a nearby street.</li> </ul> <p>For navigating during emergency services, <i>street names are crucial</i>.</p> <p>WA-Trans supports this effort by facilitating the set up of a statewide street network with names from various data providers. If no road names, then that will be evident and the areas to be improved will be well-illustrated.</p>
<b>Audience</b>	State Government, Local Government, The Tulalip Tribes, Emergency Management
<b>Business Function</b>	Property Right Descriptions of Franchise Service Areas, All Tulalip Tribes Public Service Organizations, Visitors, Emergency Management
<b>GIS Function</b>	
<b>Source Provider</b>	WA Utilities and Transportation Commission Solid Waste Section, Tulalip Tribes Community Development

<sup>1</sup> Reference: 94 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - KK**

<b>Title</b>	Street Names, Development and Maintenance
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Street names in the roads layer</li> <li>• Development and maintenance of street names</li> </ul> <p><u>Street Names in the Roads Layer</u></p> <p>The WUTC issues Certificates of Public Convenience and Necessity. These certificates are a property right. They are described in metes and bounds, and roads may be the boundary used in the legal description. We need street names in the roads layer so we can describe the boundary accurately.</p>
<b>Audience</b>	State Government, Local Government, The Tulalip Tribes, Emergency Management
<b>Business Function</b>	Property Right Descriptions of Franchise Service Areas, All Tulalip Tribes Public Service Organizations, Visitors, Emergency Management
<b>GIS Function</b>	
<b>Source Provider</b>	WA Utilities and Transportation Commission Solid Waste Section, Tulalip Tribes Community Development

<sup>1</sup> Reference: 51 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - LL**

<b>Title</b>	Transportation Infrastructure Vulnerability Assessment
<b>Description</b>	<p>There is a need to perform vulnerability assessments on transportation infrastructure statewide based on critical risk. It must break down each feature, first by ownership and then functionality, and next by the relationship to other things (for example, emergency routes, etc.) It must look at multi-hazard vulnerabilities. Then an alternative analysis must be performed.</p> <p>WA-Trans could be the basis for such an assessment and used to continually update the assessment based on new risk models and new data.</p>
<b>Audience</b>	WSDOT, Counties, Cities, Emergency Management
<b>Business Function</b>	Emergency Management, Emergency Response, Transportation Operations, Transportation Planning, Risk Management
<b>GIS Function</b>	Analysis
<b>Source Provider</b>	WSDOT Emergency Response, WSDOT Council for Disaster Planning

<sup>1</sup> Reference: 14 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - MM**

<b>Title</b>	Transportation in Emergencies, Disaster Areas, and Evacuation Routes
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Organize transportation in emergencies</li> <li>• Access into disaster areas</li> <li>• Determination of evacuation routes</li> </ul> <p><u>Organize Transportation in Emergencies</u></p> <p>In the Washington State Comprehensive Emergency Response Plan, it is the responsibility of WSDOT to coordinate all transportation (all modes, all routes) for the state. The Agency must collect information about closures and routing. During the Nisqually Quake, the Governor asked for maps including alternate routes. There is a need for a method of collecting, storing, and illustrating areas of closure and alternate routes. This requirement can be extended to include a mechanism for storing and communicating all closures in various situations including terrorist attacks, natural disasters, or construction.</p> <p><u>Access into Disaster Areas</u></p> <p>In a disaster or major emergency, it is necessary to bring people and supplies into the disaster zone. For Washington, this can include over mountain passes in snow. Planning for such an even includes modeling possible routes for bringing in emergency assistance, National Guard, FEMA and other organizations needed. Freight logistics need to be included in planning emergency supply lines for moving freight and goods into and out of secured</p>

	<p>areas. Then, in an actual event, determination of which routes to use and communication of such routes is necessary. WA-Trans can facilitate determining access into a disaster area.</p> <p><u>Determination of Evacuation Routes</u></p> <p>In a major emergency, evacuation routes must be identified and communicated. In planning for an emergency, potential evacuation routes must be determined. Software must support changing these routes based on type of emergency, location of emergency, and condition of the evacuation routes. Freight needs must be included in evacuation route planning (for example, identifying the routes that can accommodate heavy trucks).</p>
<b>Audience</b>	WSDOT, Counties, Cities, E-911, Emergency Management
<b>Business Function</b>	Emergency Management, Emergency Response, Transportation Maintenance, Transportation Operations, Transit Organizations, Military Emergency Management and Other Emergency Management Organizations, Relief Organizations, E-911, Public Works, Transportation, Police, Fire, Public Communication, Freight, Counties, Cities, Freight
<b>GIS Function</b>	Event Location, Mapping, Spatial Analysis, Dispatch, Interagency Functions
<b>Source Provider</b>	WSDOT Emergency Response, WSDOT Council for Disaster Planning, King County Emergency Management, WSDOT Freight Strategy & Policy Office

<sup>1</sup> Reference: 13, 43, 44 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - NN**

<b>Title</b>	Law Enforcement and Homeland Security Support in Public Lands Management
<b>Description</b>	<p>This is a new and emerging area for the Federal Government, which may apply to some other levels of government as well. Issues include emergency response on public lands, proximity of roads to pipelines, power lines, hazardous waste sites, toxic spills, bridges, etc.</p> <p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Law enforcement support in Public Lands management</li> <li>• Homeland security support on Public Lands</li> </ul> <p><u>Law Enforcement Support in Public Lands Management</u></p> <p>There is a need to provide support to Law Enforcement in Public Lands Management. WA-Trans would support the following business processes:</p> <ul style="list-style-type: none"> <li>• Search and rescue dispatch and other emergency responses</li> <li>• Enforcement of Special Forest Product and other permits <ul style="list-style-type: none"> <li>○ Examples are mushroom permits, bear grass collections, etc.</li> </ul> </li> </ul> <p><u>Homeland Security Support on Public Lands</u></p> <p>This is a new and emerging area for the Federal Government, which may apply</p>



	to some other levels of government as well. Issues include emergency response on public lands, proximity of roads to pipelines, power lines, hazardous waste sites, toxic spills, bridges, etc.
<b>Audience</b>	US Forest Service, US Bureau of Land Management, National Parks Service, WA Dept. of Natural Resources (DNR), WA State Parks, WSDOT, Public Works and Roads Departments, WA State Patrol (WSP), Local Law Enforcement, WA Military Department Emergency Management Division (EMD), Local Public Safety Answering Points (PSAPs)
<b>Business Function</b>	Public Lands Management, Law Enforcement, Road Design, Construction and Maintenance, Emergency Management
<b>GIS Function</b>	Mapping, Spatial Analysis
<b>Source Provider</b>	US Forest Service

<sup>1</sup> Reference: 87, 88 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - OO**

<b>Title</b>	Mapping Data for Hazardous Liquid and Gas Pipelines
<b>Description</b>	<p>The WUTC Pipeline Safety Division is required under RCW 81.88.080 to assist local governments in obtaining hazardous liquid and gas pipeline location information and maps. We are also obligated to develop a GIS that is sufficient to meet the needs of first responders.</p> <p>From an Emergency Management perspective, it is critical to have information regarding the location of hazardous materials on the transportation network, how to get to them, and what risks they may pose.</p>
<b>Audience</b>	State Government, Local Government
<b>Business Function</b>	Pipeline Access Points, Construction Inspections, Possible Evacuation Routes
<b>GIS Function</b>	Event Location, Mapping, Dispatch
<b>Source Provider</b>	WA Utilities and Transportation Commission Pipeline Safety Division

<sup>1</sup> Reference: 52 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

## 11. Law Enforcement

### **Business Need - PP**

<b>Title</b>	Law Enforcement Support in Public Lands Management
<b>Description</b>	<p>There is a need to provide support to Law Enforcement in Public Lands Management. WA-Trans would support the following business processes:</p> <ul style="list-style-type: none"> <li>• Search and rescue dispatch and other emergency responses</li> <li>• Enforcement of Special Forest Product Permit and other permits <ul style="list-style-type: none"> <li>○ Examples are mushroom permits, bear grass collections, etc.</li> </ul> </li> </ul>
<b>Audience</b>	US Forest Service, US Bureau of Land Management, National Parks Service, WA Department of Natural Resources (DNR), WA State Parks
<b>Business Function</b>	Public Lands Management, Law Enforcement
<b>GIS Function</b>	
<b>Source Provider</b>	US Forest Service

<sup>1</sup> Reference: 87 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - QQ**

<b>Title</b>	<p>Address Geocoding of Crime Incidents</p> <p>For details, please refer to Business Need AA in Section 9, "Geocoding / Event Location".</p>
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### **Business Need - RR**

<b>Title</b>	Provide a Base Map for Collision Location Tools
<b>Description</b>	<p>Many collisions in Washington are reported by law enforcement. Currently there is a lot of difficulty with accurate location of collisions. The Washington Traffic Safety Commission has identified the development of a handheld tool for use by law officers to identify collision locations, using a variety of location identification methods. This is a strategically critical need. WA-Trans has been identified as the potential base map for this project.</p>
<b>Audience</b>	?????
<b>Business Function</b>	?????
<b>GIS Function</b>	?????
<b>Source Provider</b>	?????

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**Business Need - SS**

<b>Title</b>	Trespass Reduction For details, please refer to Business Need CC in Section 9, "Geocoding / Event Location".
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**Business Need - TT**

<b>Title</b>	Support School and Daycare Base Map Data for Law Enforcement Purposes For details, please refer to Business Need BB in Section 9, "Geocoding / Event Location".
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## 12. Maintenance of Transportation Infrastructure

### ***Business Need - UU***

<b>Title</b>	Railroad Line Data, Crossing Safety, and Safety Inspections For details, please refer to Business Need S in Section 8, "Freight, Rail, and Passenger Mobility Planning and Management".
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### ***Business Need - VV***

<b>Title</b>	Terminal Planning Data and Multi-Modal Transportation Options
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Data for terminal planning analysis and communication</li> <li>• Integrate multi-modal transportation options</li> </ul> <p><u>Data for Terminal Planning Analysis and Communication</u></p> <p>Washington State Ferries is considered part of the state highway system. When they are looking at modifying or building a terminal they need a great deal of data. They need to know the roads and other transportation converging on a location.</p> <p><u>Integrate Multi-Modal Transportation Options</u></p> <p>This need was stated as:</p> <ul style="list-style-type: none"> <li>• "Integrating WSF (Washington State Ferry) terminal data with roads, bike paths, rails, bus systems, water-based travel that leads to ferry terminal including traffic data".</li> </ul> <p>– And –</p> <ul style="list-style-type: none"> <li>• The "need to be able to evaluate how arterials and ferry terminals interface with the State roadway system, and how traffic is moved between them". This need could be extended to say that all modes need to be combined for analysis of transportation patterns for transportation planning.</li> </ul>
<b>Audience</b>	WSDOT, Counties, Cities, Puget Sound Regional Council, Kitsap Transit, Community Transit
<b>Business Function</b>	Ferry Planning, Transportation Planning, Transit
<b>GIS Function</b>	
<b>Source Provider</b>	WSDOT Ferry Terminal Engineering, WSDOT Urban Corridors, Pierce County

<sup>1</sup> Reference: 27, 28 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - WW**

<b>Title</b>	Traffic Count Locations For details, please refer to Business Need FF in Section 9, "Geocoding / Event Location".
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**Business Need - XX**

<b>Title</b>	Ferry Schedules Coordination with Traffic Management For details, please refer to Business Need P in Section 8, "Freight, Rail, and Passenger Mobility Planning and Management".
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**Business Need - YY**

<b>Title</b>	Indian Reservation Roads and Tribal Treaty Rights
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Designate Indian reservation roads explicitly</li> <li>• Supporting tribal treaty rights</li> </ul> <p><u>Designate Indian Reservation Roads Explicitly</u></p> <p>Federal law requires consultation with tribal nations in long range transportation planning. Additionally, it can be cost beneficial to coordinate planning, development, construction, and maintenance of Indian Reservation Roads (IRR) and other local, county and state roads as they are frequently shared and have similar needs. Using WA-Trans to illustrate that, IRR would facilitate the consultation process and coordination efforts.</p> <p><u>Supporting Tribal Treaty Rights</u></p> <p>Hunting and fishing is most commonly accessed by roads. Hunting and fishing are treaty rights in many cases. Fish passage and habitat associated with roads can affect treaty rights. The existence of roads that provide access to protected or tribal lands needs to be identified and analyzed for these purposes.</p>
<b>Audience</b>	WSDOT, County and Local Governments, Metropolitan Planning Organizations, Regional Transportation Planning Organizations, Tribal Nations, Bureau of Indian Affairs, US Forest Service, US Bureau of Land Management, National Parks Service, WA Dept. of Natural Resources (DNR), WA State Parks, WSDOT, Public Works and Roads Departments, Tribal Nations in Washington State
<b>Business Function</b>	Transportation Planning, Transportation Project Funding, Transportation Project Scoping and Design, Transportation Maintenance, Transportation Operations, Tribal Nations, Public Lands Management, Road Design, Construction and Maintenance

<b>GIS Function</b>	
<b>Source Provider</b>	EWU TTAP, Makah Transportation Planning, Bureau of Indian Affairs (BIA), US Forest Service

<sup>1</sup> Reference: 61, 85 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - ZZ**

<b>Title</b>	Roads Inventory to CRAB and Mapping of Mobility Information
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Roads inventory to the County Road Administration Board (CRAB) (County, Tribal, City, State)</li> <li>• Mapping of Mobility, the county road inventory system information</li> </ul> <p><u>Roads Inventory to the County Road Administration Board (CRAB) (County, Tribal, City, State)</u></p> <p>CRAB authorities keep records of maintained roads with inventory information, including pavement type, pavement width, functional classification, and average daily traffic (ADT). This information is used to determine gas tax allocation. The Bureau of Indian Affairs (BIA) also collects an inventory of Tribal Roads City Roads. County and State inventory is needed for Federal Classification. This event based data would be useful for freight planning.</p> <p>This data also includes the basis for a route / mile post linear referencing system for county roads statewide.</p> <p><u>Mapping of Mobility, the County Road Inventory System Information</u></p> <p>The county road inventory system, Mobility, is a large database of road characteristics. From this database maps and reports are generated and provided to federal and state agencies. The road centerline file is linked via dynamic segmentation to the Mobility records.</p> <p><b>Note:</b> For related information, please refer to Business Need H in Section 6, "Cross-Governmental &amp; Public Communication".</p>
<b>Audience</b>	WSDOT, Counties, Local Governments, County Road Administration Board, Federal Highway Administration, Bureau of Indian Affairs, Tribal Government, Strategic Freight Transportation Analysis Project
<b>Business Function</b>	Public Works, County Engineers, Transportation Construction Projects, WSDOT Transportation Data Office, Bureau of Indian Affairs, Tribal Governments, Federal Highway Administration, Freight, Analysis and Reporting
<b>GIS Function</b>	Event Location
<b>Source Provider</b>	Counties Pierce County

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<sup>1</sup> Reference: 38, 71 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - AAA**

<b>Title</b>	Roadway and Transportation Features, Analysis, and Inventory For details, please refer to Business Need B in Section 5, "Asset Management".
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**Business Need - BBB**

<b>Title</b>	Unimproved or Temporary Roads
<b>Description</b>	The WUTC Pipeline Safety Division is required under RCW 81.88.080 to assist local governments in obtaining hazardous liquid and gas pipeline location information and maps. We are also obligated to develop a GIS that is sufficient to meet the needs of first responders.
<b>Audience</b>	State Government, Local Government
<b>Business Function</b>	Pipeline Access Points, Construction Inspections, Possible Evacuation Routes
<b>GIS Function</b>	Event Location, Mapping, Dispatch
<b>Source Provider</b>	WA Utilities and Transportation Commission Pipeline Safety Division

<sup>1</sup> Reference: 52 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - CCC**

<b>Title</b>	Snow Removal Routes & Features and Snow Route Mapping
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Snow removal routes and features along the route</li> <li>• Snow route mapping</li> </ul> <p><u>Snow Removal Routes and Features Along the Route</u></p> <p>WSDOT does snow removal work for the National Parks and State Parks. They have responsibilities regarding care of specialized guard rails along the routes owned and maintained by the parks service, but can be affected by the plowing. There is a need to track these routes / features and share data with the State and National Parks.</p> <p><u>Snow Route Mapping</u></p> <p>Snow route maps are developed for each of the road maintenance areas. They allow the road shops to view their territory as well as surrounding districts. This data is used to dispatch snow crews and coordinate work across the county.</p>
<b>Audience</b>	WSDOT, WA State Parks, National Parks Service, County and Local Governments
<b>Business Function</b>	Road Maintenance (including Park Services), State Maintenance
<b>GIS Function</b>	
<b>Source Provider</b>	WSDOT Maintenance and Operations, Pierce County

<sup>1</sup> Reference: 34, 77 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - DDD**

<b>Title</b>	Representations with Bi-directional Carriageways
<b>Description</b>	WSDOT Transportation Data Office locates features and other items along the roadway. There is currently great inaccuracy because the roadway is represented with one centerline and the actual routes that are separated and different in each direction are not accurately represented. This leads to bad data when locating features and other things along the roadway. Bi-directional carriageways are needed with measurements in each direction.
<b>Audience</b>	WSDOT, Counties, Cities, Strategic Freight Transportation Analysis Project
<b>Business Function</b>	Transportation Planning, Project Scoping, Project Design, Communication, Transportation Data Collection, Public Works, Transportation Maintenance, Transportation Operations
<b>GIS Function</b>	



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<b>Source Provider</b>	WSDOT Transportation Data Office
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<sup>1</sup> Reference: 18 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### ***Business Need - EEE***

<b>Title</b>	Pavement Maintenance and Operations
<b>Description</b>	<p>Pavement management is a large topic that encompasses the need to:</p> <ul style="list-style-type: none"> <li>• Capture pavement conditions</li> <li>• Rate pavement failure</li> <li>• Prioritize future road surfacing projects</li> </ul> <p>For all these efforts, the road centerline is used and data is mapped to the road network to show characteristics for pavement management.</p>
<b>Audience</b>	County and Local Governments
<b>Business Function</b>	Road Maintenance
<b>GIS Function</b>	
<b>Source Provider</b>	Pierce County

<sup>1</sup> Reference: 75 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### ***Business Need - FFF***

<b>Title</b>	<p>Vegetation Spray Areas</p> <p>For details, please refer to Business Need GG in Section 9, "Geocoding / Event Location".</p>
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### ***Business Need - GGG***

<b>Title</b>	WA-Trans Metadata
<b>Description</b>	<p>Federal Geographic Data Committee Standard is the standard for describing geospatial data. This information describes the data content of WA-Trans including data quality, data sources, entities, attributes, applicable time periods of content, and processing steps. WA-Trans must support the Washington Standards and the FGDC Standards for Metadata.</p>
<b>Audience</b>	All
<b>Business Function</b>	All

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<b>GIS Function</b>	
<b>Source Provider</b>	Literature

<sup>1</sup> Reference: 60 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

## 13. Map Production

### **Business Need - HHH**

<b>Title</b>	Map Production, Event Location-based Maps, and County Road Atlases
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Map production and event location-based maps</li> <li>• Providing collision data to local governments</li> </ul> <p><u>Map Production and Event Location-based Maps</u></p> <p>Organizations must meet the need to produce basic cartographic products. This functionality includes geometry, accuracy, and topological integrity.</p> <p><u>County Road Atlases</u></p> <p>The County Road Atlas is a digital and paper product used to show the public and private roads in the county. Scale is 1" = 2000'.</p>
<b>Audience</b>	Federal Government, State Government, Regional Government, Local Government, Public, Transit, Counties, Cities, Emergency Management, WA E-911, Bureau of Census, WSDOT, County and Local Governments
<b>Business Function</b>	Transit, Counties, Cities, Emergency Management, E-911, Economic Development, Census Gathering and Analysis, Transportation Planning, Public Communication, Environmental Analysis, Utilities, Base Mapping, Public Records, Cartography, any function needing a street centerline base map
<b>GIS Function</b>	Mapping
<b>Source Provider</b>	Community Transit, Seattle Public Utilities, Pierce County, and various other counties and cities

<sup>1</sup> Reference: 37, 69 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - III**

<b>Title</b>	Intersection Improvement Maps
<b>Description</b>	There is a need for a map of intersections and needed improvements. It is scaled at 1" = 50'.
<b>Audience</b>	County and Local Governments
<b>Business Function</b>	Road Construction
<b>GIS Function</b>	
<b>Source Provider</b>	Pierce County

<sup>1</sup> Reference: 80 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - JJJ**

<b>Title</b>	Current and Historic Zoning Maps
<b>Description</b>	Current and historic zoning are mapped to the center of the road. This is used by many county departments for planning purposes.
<b>Audience</b>	County and Local Governments
<b>Business Function</b>	Planning
<b>GIS Function</b>	
<b>Source Provider</b>	Pierce County

<sup>1</sup> Reference: 64 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - KKK**

<b>Title</b>	WA State Transportation Data for the National Map
<b>Description</b>	The USGS National Map Project needs the most efficient way to access data. Currently, the data that this project uses will come from local data sources with individual agreements for each. WA-Trans would maintain those agreements and provide one source for the transportation data for the National Map. This simplifies the process and cost of gathering and maintaining the data significantly.
<b>Audience</b>	All Government, Public
<b>Business Function</b>	National Map Production, General Public, Businesses, Tourists
<b>GIS Function</b>	Interagency Functions
<b>Source Provider</b>	US Geological Survey

<sup>1</sup> Reference: 56 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - LLL**

<b>Title</b>	Compatibility with Related Transportation Frameworks
<b>Description</b>	WA-Trans must be able to exchange data with transportation frameworks from Oregon, Idaho, and British Columbia, Canada. It must also be compatible with the GeoSpatial One-Stop Transportation Model. WA-Trans must also work with the other Washington statewide layers including hydrography, cadastral, orthoimagery, etc.
<b>Audience</b>	WSDOT, FHWA, USFS, USGS

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<b>Business Function</b>	Inter-state Transportation Planning, Data Communication, Transportation Data Collection, Transportation Project Funding
<b>GIS Function</b>	
<b>Source Provider</b>	Bureau of Transportation Statistics, Oregon Department of Transportation, Interregional Information Coordinating Council, USGS

<sup>1</sup> Reference: 59 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - MMM**

<b>Title</b>	Voter Mapping for the Auditor
<b>Description</b>	The Auditor geocodes voter locations and this information is provided to the candidates. This work is also used for re-districting efforts.
<b>Audience</b>	County and Local Governments
<b>Business Function</b>	Redistricting, Candidate Research
<b>GIS Function</b>	
<b>Source Provider</b>	Pierce County

<sup>1</sup> Reference: 66 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

## 14. Public Lands Management

### ***Business Need - NNN***

<b>Title</b>	Law Enforcement and Homeland Security Support in Public Lands Management For details, please refer to Business Need NN in Section 10, "Homeland Security / Emergency Management and Response".
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### ***Business Need - OOO***

<b>Title</b>	Public Lands Management Engineering and Recreation Development-Maintenance
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Facilitation of Public Lands Management engineering activities</li> <li>• Facilitation of Public Lands Management development and maintenance of recreation</li> </ul> <p><u>Facilitation of Public Lands Management Engineering Activities</u></p> <p>Various Public Lands Management organizations have engineering sections that perform a variety of work which could benefit from WA-Trans. These include:</p> <ul style="list-style-type: none"> <li>• Locating and designing temporary and permanent roads for timber sales, campgrounds, etc.</li> <li>• Recording locations of bridges, culverts, fords, and other stream crossings</li> <li>• Recording locations of campground loops</li> <li>• Locating, recording, and maintenance planning for bike, hike, equestrian, 4-wheel drive, and ATV trails</li> <li>• Access to telecommunication sites like microwave stations, radio repeater stations, etc.</li> <li>• Determining the best place to put fire observers and lookouts</li> <li>• Planning and tracking of maintenance on existing roads, including records for Maintenance Levels and other operational data</li> </ul> <p><u>Facilitation of Public Lands Management Development and Maintenance of Recreation</u></p> <p>Public lands management organizations provide recreational opportunities to the public. The following work can be facilitated by WA-Trans:</p> <ul style="list-style-type: none"> <li>• Recreation Opportunity Spectrum (ROS) planning for different types of recreational uses based on proximity to roads. <ul style="list-style-type: none"> <li>○ Examples are "Roaded Natural", "Semi-primitive Recreation", and "Road-less" areas</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• Trail maintenance planning and implementation</li> <li>• Planning and design for new recreation facilities like campgrounds, picnic areas, interpretive sites, viewpoints, etc.</li> <li>• Scenery and viewshed analysis</li> <li>• Maps for hunters, hikers, and other recreationists</li> <li>• Horse, ATV, and off-road vehicle uses</li> </ul>
<b>Audience</b>	US Forest Service, US Bureau of Land Management, National Parks Service, WA Dept. of Natural Resources (DNR), WA State Parks
<b>Business Function</b>	Public Lands Management
<b>GIS Function</b>	
<b>Source Provider</b>	US Forest Service

<sup>1</sup> Reference: 90-91 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - PPP**

<b>Title</b>	Fire Suppression Facilitation
<b>Description</b>	<p>WA-Trans could assist with fire suppression activities in the following ways:</p> <ul style="list-style-type: none"> <li>• Determining and following the quickest route to an arbitrary location where crews need to be dispatched on short notice</li> <li>• Recording the location of human-caused fire starts along a road</li> <li>• Determining whether a fire is suspicious by its proximity to a road</li> <li>• Estimating fire "risk" based upon hazardous fuel loading data plus the probability of ignition, which is highest near roads</li> </ul>
<b>Audience</b>	US Forest Service, US Bureau of Land Management, National Parks Service, WA Dept. of Natural Resources (DNR), WA State Parks
<b>Business Function</b>	Public Lands Management
<b>GIS Function</b>	
<b>Source Provider</b>	US Forest Service

<sup>1</sup> Reference: 89 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

## **15. Traffic Safety Records Support**

### **Business Need - QQQ**

<b>Title</b>	Collection, Analysis, Location, and Mapping of Accident and Collision Data
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<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>Collecting collision data and locations</li> <li>Collision mapping</li> </ul> <p><u>Collecting Collision Data and Locations</u></p> <p>The WSDOT Transportation Data Office collects data and performs collision reporting and tracking where collisions occur on specific highways. Collisions are located at all levels of government and reported to WSDOT. The accuracy of the location has an impact on how collisions are classified and grouped. The groupings impact the prioritization of public funding of safety mitigation on the roadways. There is a need to accurately locate collisions on all roads in a GIS.</p> <p>Additionally, there is a desire to provide law enforcement at all levels with the ability to locate collisions using a tool that relies on a common base map to identify the location of collisions based on various location methods (address, route milepost, GPS coordinate, etc.). This data can then be reported, compiled, tracked, and shared based on location.</p> <p>Eventually WA State Patrol (WSP) and other police vehicles will be outfitted with GIS to report the location of collisions. Data would be used for analysis about problems that cause collisions. Freight interests need to know where truck accidents occur to identify unsafe conditions and problem locations.</p> <p><u>Collision Mapping</u></p> <p>County road engineers have a database of accident information that is linked and mapped on the road centerline file. This is a countywide database that shows historical records.</p>
<b>Audience</b>	WSDOT, Counties, Cities, Local Governments, Transit Organizations, WA State Patrol, Sheriffs, Police, WSDOT, Washington Legislature, Traffic Safety Commission
<b>Business Function</b>	<p>Transportation Operations, Transportation Maintenance, Transportation Planning Organizations, Transit Organizations, Police, Emergency Response, Law Enforcement, Public Works</p> <p>Analysis — Determination of dangerous road segments and intersections</p>
<b>GIS Function</b>	Event Location, Spatial Analysis
<b>Source Provider</b>	WSDOT Transportation Data Office, WSDOT Freight Strategy & Policy Office, Pierce County

<sup>1</sup> Reference: 19, 72, 102 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - RRR**

<b>Title</b>	<p>Address Geocoding of Crime Incidents</p> <p>For details, please refer to Business Need AA in Section 9, "Geocoding / Event Location".</p>
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**Business Need - SSS**

<b>Title</b>	Railroad Crossing Safety and Safety Inspections
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Crossing safety</li> <li>• General railroad safety inspections</li> </ul> <p><u>Crossing Safety</u></p> <p>Using information about specific characteristics regarding grade crossings, roadway characteristics, traffic counts, and train operations, WUTC and WSDOT Staff are able to conduct accident prediction and other hazard analysis for resource allocation and safety improvements. The data will also assist field inspectors to review crossings for safety improvements including signal upgrades, crossing surface needs, and related regulatory duties. Crossing defects can be tracked and railroad company repair performance can be analyzed.</p> <p><u>General Railroad Safety Inspections</u></p> <p>Using information about rail line locations, commodities hauled, train counts, and other operational information, inspections involving hazardous materials, track, and operation practices can be targeted, planned, and optimized. Accidents and HAZMAT releases can be tracked to identify safety problems.</p>
<b>Audience</b>	WSDOT, Counties, Cities, E-911, Puget Sound Regional Council, Bureau of Census, Strategic Freight Transportation Analysis Project, Utilities and Transportation Commission, State Government, Local Government
<b>Business Function</b>	Public Works, Transportation Construction Projects, Planning, E-911, WSDOT Bridge Preservation Office, Metropolitan Planning Organizations, Regional Transportation Planning Organizations, Emergency Management, WSDOT Transportation Data Office, WSDOT Rail Office, Safety Analysis, Inspection Priorities, Resource Allocation, Compliance Actions, Hazard Reduction
<b>GIS Function</b>	
<b>Source Provider</b>	WSDOT Olympic Region Lacey Project Engineers Office, WSDOT Rail Office, WSDOT Bridge Preservation Office, Strategic Freight Transportation Analysis Project; WSDOT Freight Strategy & Policy Office, WA Utilities and Transportation Commission

<sup>1</sup> Reference: 45, 46 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**16. Transit and Public Transportation****Business Need - TTT**

<b>Title</b>	Coordinated Dispatch of On-Demand Transportation
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<b>Description</b>	<p>There is a need for social service providers to facilitate coordinated dispatch and scheduling for demand response rides provided for Americans with Disabilities Act (ADA) individuals.</p> <p>There is also a need to link trips on demand using a pool of different transportation providers and routes for a particular day so transportation can be arranged as needed with a single call. The idea is to provide a call center for this purpose.</p>
<b>Audience</b>	WSDOT, Counties, Cities
<b>Business Function</b>	Social Services, Public
<b>GIS Function</b>	
<b>Source Provider</b>	WSDOT Public Transportation Office

<sup>1</sup> Reference: 31 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - UUU**

<b>Title</b>	Support the Travel Options Project Effort
<b>Description</b>	<p>The WSDOT Public Transportation Office is working on an effort called "Travel Options", which ultimately involves providing the public with information about what transportation options are available from one location to another. It involves routing and transit information, and is anticipated to be web based.</p> <p>Initially, the project focuses on getting information on fixed routes systems. Then it will work on getting information about demand response and other transportation. Eventually, it would become a doorstep-to-doorstop trip planner anywhere in the state. This project depends on a statewide base map with addressing and routing for multiple modes.</p> <p>The project will serve all commuters who use public transportation, and would be particularly useful to social services and others who plan transportation for ADA (Americans With Disabilities Act) and low income individuals.</p>
<b>Audience</b>	WSDOT, Kitsap Transit, Community Transit
<b>Business Function</b>	Social Services, Chamber of Commerce, Employment Organizations, Commute Trip Reduction, Transit Systems
<b>GIS Function</b>	Event Location, Mapping, Dispatch
<b>Source Provider</b>	WSDOT Public Transportation Office, WSDOT Transportation Demand Management Office

<sup>1</sup> Reference: 22 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

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**Business Need - VVV**

<b>Title</b>	Analyze Park & Rides and Connecting Routes
<b>Description</b>	<p>WA-Trans should include Park &amp; Rides, including lights and pavement conditions by location. Data is needed regarding Park &amp; Rides, including the need to analyze direct access to and from Park &amp; Rides to other systems. Not all Park &amp; Rides belong to WSDOT or are maintained by them.</p> <p>The City of Seattle Department of Transportation manages a car pool parking program, which may also be useful as part of sharing data about Park &amp; Rides.</p>
<b>Audience</b>	WSDOT, Counties, Cities, Puget Sound Regional Council, Kitsap Transit, Community Transit
<b>Business Function</b>	Transportation Planning, Transit, Transportation Construction programs, Commute Trip Reduction, Employment Organizations
<b>GIS Function</b>	
<b>Source Provider</b>	WSDOT Program Management, WSDOT Urban Corridors, WSDOT Transportation Demand Management Office, City of Seattle Department of Transportation

<sup>1</sup> Reference: 25 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

## 17. Transportation Planning Studies

### **Business Need - WWW**

<b>Title</b>	Future Transportation Plans
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Future plans for transportation infrastructure</li> <li>• 20-year transportation plan development</li> <li>• County transportation improvement plan</li> </ul> <p><u>Future Plans for Transportation Infrastructure</u></p> <p>Organizations need to know the plans of other organizations regarding building or modifying transportation infrastructure including sidewalk plans as soon as they were estimated. This data needs to be geocoded.</p> <p>Information needs to include road segment or structure involved. This would facilitate communication and help planning in a more proactive and mutually supporting ways.</p> <p><u>20-Year Transportation Plan Development</u></p> <p>There is a need to develop a 20-year transportation plan. This involves the usage of transportation plan data statewide as well as a variety of other data. The other data will be included in the data sections of this document.</p> <p><u>County Transportation Improvement Plan</u></p> <p>The Transportation Improvement Plan (TIP) shows the estimated road improvements for future years. This document is used for budgeting purposes. The proposed improvements are mapped at a scale of 1" = 2000' and are linked to the tabular database as well as symbolized in the map product.</p>
<b>Audience</b>	WSDOT, Counties, Cities, Local Governments, E-911, Puget Sound Regional Council, Federal Highway Administration, Bureau of Census, County Road Administration Board, Freight Mobility Strategic Investment Board, Strategic Freight Transportation Analysis Project
<b>Business Function</b>	Public Works, Road Construction, Transportation Construction Projects, Transportation Planners, Business Developers, E-911, Transit Organizations, Census-related Organizations, Urban Planners, Private Developers, Government Agencies, Program Managers
<b>GIS Function</b>	
<b>Source Provider</b>	WSDOT Planning, WSDOT Olympic Region Lacey Project Engineers Office, WSDOT Olympic Region Highway and Local Programs Engineer, WSDOT Environmental Affairs Office, WSDOT Highways and Local Programs, WSDOT Ferry Terminal Engineering, City of Seattle DOT, Pierce County

<sup>1</sup> Reference: 2, 9, 73 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - XXX**

<b>Title</b>	Compatibility with Related Transportation Frameworks For details, please refer to Business Need LLL in Section 13, "Map Production".
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**Business Need - YYY**

<b>Title</b>	Identification of Partners and Alternate Sources for Roads Funding
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>Identifying potential partners in transportation planning</li> <li>Identifying alternate sources for roads funding</li> </ul> <p><u>Identification of Potential Partners in Transportation Planning</u></p> <p>Various road authorities and other interested parties can assist with planning and funding of roadwork. Many of these parties could be identified easily if road authorities were clearly identified with WA-Trans.</p> <p><u>Identifying Alternate Sources for Roads Funding</u></p> <p>A variety of sources for funding of road work is available, depending on where the roads are located. If the roads in WA-Trans were categorized based on the type of funding they were eligible for, there may be opportunities for funding that are not currently tapped. These include State, Federal Highway Administration (FHWA), Public Lands Highways, Park Roads and Parkways, IRR, and National Wildlife Refuge System under the Federal Lands Highway Program and United States Department of Interior.</p>
<b>Audience</b>	WSDOT, County and Local Governments, Metropolitan Planning Organizations, Regional Transportation Planning Organizations, Tribal Nations
<b>Business Function</b>	Transportation Planning, Transportation Project Funding, Transportation Project Scoping and Design, Transportation Maintenance, Transportation Operations
<b>GIS Function</b>	
<b>Source Provider</b>	EWU TTAP, Makah Tribe Transportation Planning, Bureau of Indian Affairs (BIA), Tulalip Tribes Community Development Department

<sup>1</sup> Reference: 62, 63 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - ZZZ**

<b>Title</b>	Facilitate the Development of Travel Demand Forecasting Models
<b>Description</b>	Travel demand forecasting is a process of building models to use in decision support. Currently, MPOs build their own models. WSDOT needs to build a

	model that would connect to their models. It would require information on local, county and state roads, rail, air, ferry, freight, and transit routes. This would be used for long-range planning. It would also be useful in the analysis of "environmental justice" issues with transportation planning.
<b>Audience</b>	WSDOT, Counties, Cities, Puget Sound Regional Council, Transit Organizations, Freight Mobility Strategic Investment Board, Strategic Freight Transportation Analysis Project
<b>Business Function</b>	Transportation Planning, Urban Planning, Business Planning, Communication
<b>GIS Function</b>	
<b>Source Provider</b>	WSDOT Planning Office, WSDOT Environmental Affairs Office, Strategic Freight Transportation Analysis Project, WSDOT Freight Strategy & Policy Office

<sup>1</sup> Reference: 16 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - AAAA**

<b>Title</b>	Building the Highway System Plan
<b>Description</b>	<p>The agency builds the Washington Transportation Plan periodically. Part of this plan includes the Highway System Plan (HSP). Developing the plan involves collecting all transportation data from all modes and identifying deficiencies based on service objectives and outcome statements.</p> <p>Data collected includes project information, proposals, locations, deficiencies and segments. Ideally, they would like to include data collected from locals and counties so they can develop corridor plans and raw development plans. There could be land issues, modeling needs, new development needs and local transportation circulation issues that come into the plan.</p> <p>Delay and deficiencies are measured based on all of this information, and then the plan is developed. It would be useful to have a specific focus on developing freight corridors and routes.</p>
<b>Audience</b>	WSDOT, Counties, Cities, Puget Sound Regional Council, Transit Organizations, Strategic Freight Transportation Analysis Project, Federal Highway Administration
<b>Business Function</b>	Transportation Planning, Urban Planning, Business Planning
<b>GIS Function</b>	
<b>Source Provider</b>	WSDOT Planning Office, Strategic Freight Transportation Analysis Project, WSDOT Freight Strategy & Policy Office

<sup>1</sup> Reference: 17 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - BBBB**

<b>Title</b>	Representations with Bi-directional Carriageways For details, please refer to Business Need DDD in Section 12, "Maintenance of Transportation Infrastructure".
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**Business Need - CCCC**

<b>Title</b>	Transportation Infrastructure Vulnerability Assessment
<b>Description</b>	There is a need to perform vulnerability assessments on transportation infrastructure statewide based on critical risk. It must break down each feature, first by ownership and then functionality, and next by the relationship to other things (for example, emergency routes, etc.) It must look at multi-hazard vulnerabilities. Then an alternative analysis must be performed.  WA-Trans could be the basis for such an assessment and used to continually update the assessment based on new risk models and new data.
<b>Audience</b>	WSDOT, Counties, Cities, Emergency Management
<b>Business Function</b>	Emergency Management, Emergency Response, Transportation Operations, Transportation Planning, Risk Management
<b>GIS Function</b>	
<b>Source Provider</b>	WSDOT Emergency Response, WSDOT Council for Disaster Planning

<sup>1</sup> Reference: 14 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

**Business Need - DDDD**

<b>Title</b>	Terminal Planning Data and Multi-Modal Transportation Options
<b>Description</b>	<p>Business activity related to this business need includes:</p> <ul style="list-style-type: none"> <li>• Data for terminal planning analysis and communication</li> <li>• Integrate multi-modal transportation options</li> </ul> <p><u>Data for Terminal Planning Analysis and Communication</u></p> <p>Washington State Ferries is considered part of the state highway system. When they are looking at modifying or building a terminal they need a great deal of data. They need to know the roads and other transportation converging on a location.</p> <p><u>Integrate Multi-Modal Transportation Options</u></p> <p>This need was stated as:</p> <ul style="list-style-type: none"> <li>• "Integrating WSF (Washington State Ferry) terminal data with roads,</li> </ul>

	bike paths, rails, bus systems, water-based travel that leads to ferry terminal including traffic data”. – And – <ul style="list-style-type: none"> <li>The “need to be able to evaluate how arterials and ferry terminals interface with the State roadway system, and how traffic is moved between them”. This need could be extended to say that all modes need to be combined for analysis of transportation patterns for transportation planning.</li> </ul>
<b>Audience</b>	WSDOT, Counties, Cities, Puget Sound Regional Council, Kitsap Transit, Community Transit
<b>Business Function</b>	Ferry Planning, Transportation Planning, Transit
<b>GIS Function</b>	
<b>Source Provider</b>	WSDOT Ferry Terminal Engineering, WSDOT Urban Corridors, Pierce County

<sup>1</sup> Reference: 27, 28 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - EEEE**

<b>Title</b>	Non-motorized Transportation Plan
<b>Description</b>	The Non-motorized Transportation Plan is a guide for bicycle, pedestrian, and equestrian travel. Maps display existing and proposed facilities. Maps aid travelers in choosing appropriate travel routes. The County arterial roadway map is used as a base map.
<b>Audience</b>	County and Local Governments
<b>Business Function</b>	Transportation Planning
<b>GIS Function</b>	
<b>Source Provider</b>	Pierce County

<sup>1</sup> Reference: 78 (from the WA-Trans Business Needs Document, Nov. 14, 2005)

### **Business Need - FFFF**

<b>Title</b>	Indian Reservation Roads and Tribal Treaty Rights For details, please refer to Business Need YY in Section 12, “Maintenance of Transportation Infrastructure”.
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**Business Need - GGGG**

<b>Title</b>	Access to Historical Versions of WA-Trans For details, please refer to Business Need C in Section 5, "Asset Management".
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## 18. Data Needs

Business needs were expressed that involved the use of this data in relationship to the transportation network across the state. These data items may not — and in some cases should not — be part of WA-Trans. However, WA-Trans may facilitate analysis by working with this data to assist in meeting specific business needs.

The following terms describe the Data Needs table shown on the next page:

- **Data Category** – This field is a high level category of various data elements that allows for development of “themes” of data, which can be geocoded into different layers in a GIS.
- **Specific Data** – Individual data elements, which relate to the category that stakeholders want to see in relation to the transportation network. No detail is provided about these elements at this point.
- **Source of Need** – The original organization requesting this data with the transportation data.
- **Business Function** – The business function that may use this data or may contribute this data.
- **Framework Theme** – Where a framework theme in Washington State has the data within its scope it is identified here.

**Data Needs Table**

<b>Data Category</b>	<b>Specific Data</b>	<b>Source of Need</b>	<b>Business Function</b>	<b>Framework Theme</b>
Utilities	Gas line locations	WSDOT Project Engineers, WSDOT ITS (TRAC), WSDOT State Design Office, BOC	Transportation Construction	None
Utilities	Phone power lines	WSDOT Project Engineers, WSDOT ITS (TRAC), WSDOT State Design Office, BOC	Transportation Construction	None
Utilities	Wireless transmission	WSDOT Project Engineers, WSDOT ITS (TRAC), WSDOT State Design Office	Transportation Construction	None
Utilities	Date and location about digging	WSDOT Olympic Region H&LP Engineer	Transportation Construction and Maintenance	None
Parcel Data	Ownership along roadways, railways, ferry terminals	WSDOT Project Engineers, WSDOT Rail Office, WSDOT Bridge Preservation Office	Transportation Construction, Maintenance and Operations, Emergency Management	Cadastral
Parcel Data	Homes and businesses along projects and by ferry terminals and Geocoding to census geography	WSDOT Urban Corridors, WSF Terminal Engineering, BOC	Transportation Construction, Transportation Planning, Counties and Cities, Public	Cadastral
Land Use	Zoning data including landmarks such as cemeteries, parks, military land	WSDOT Project Engineers, WSDOT Environmental Affairs Office, WSF Terminal Engineering, WSDOT Planning Office, BOC	Transportation Planning, Environmental Assessment, Transportation Construction, Commute Trip Reduction, Transit	None
Land Use	Urban Growth Boundaries	WSDOT Project Engineers, WSDOT Environmental Affairs Office, WSF Terminal Engineering, WSDOT Planning Office, BOC	Transportation Planning, Environmental Assessment, Commute Trip Reduction, Transit, Counties and Cities	None
Land Use	Boundaries of "critical areas" such as burial grounds on tribal land	WSDOT Olympic Region Design, WSDOT Environmental Affairs Office	Transportation Planning, Environmental Assessment, Transportation Construction, Counties and Cities	None
Land Use	Historic sites (historic districts, bridges, and public lands	WSDOT Environmental Affairs Office	Transportation Planning, Environmental Assessment, Transportation Construction, Counties and Cities	None

<b>Data Category</b>	<b>Specific Data</b>	<b>Source of Need</b>	<b>Business Function</b>	<b>Framework Theme</b>
Land Use	Community centers, school district locations and boundaries, weigh stations along roadways	WSDOT Program Management, WSDOT Design Office, BOC	Transportation Planning, Transportation Construction, Transit, Commute Trip Reduction, Counties and Cities	None
Land Use	Shore Master Permits along ferry terminals	WSF Terminal Engineering	Transportation Planning and Construction, Environmental Assessment	None
Land Use	Comprehensive along Ferry terminals	WSF Terminal Engineering	Transportation Planning and Construction, Environmental Assessment	None
Land Use	Structure centroids or footprints assist BOC with ability to incorporate GS technology into field enumeration activities.	BOC	Census activities	None
Environmental	Location of well headers	WSDOT Olympic Region Design	Transportation Construction, Environmental Assessment	None
Environmental	Delineated wetlands location and buffer and environmental classification in project area or along roadway	WSDOT Olympic Region Design, WSDOT Rail Office, WSDOT Urban Corridors, WSDOT Maintenance and Operations	Transportation Construction, Environmental Assessment, Natural Resource Management	Hydrography
Environmental	Creek, stream, and river location and buffer and environmental classification in project area or along roadway, used as boundaries by BOC	WSDOT Rail Office, WSDOT Urban Corridors, WSDOT Olympic Region Design, WSDOT Maintenance and Operations, BOC	Transportation Construction, Environmental Assessment, Natural Resource Management	Hydrography
Environmental	Storm water treatment facilities and conveyances	WSDOT Olympic Region Design, WSDOT Environmental Affairs Office	Transportation Construction, Environmental Assessment, private business	None
Environmental	Drainage onto and off of project area	WSDOT Environmental Affairs Office	Transportation Construction, Environmental Assessment, Natural Resource Management	Hydrography
Environmental	100 year flow of water crossings on project areas	WSDOT Environmental Affairs Office, WSDOT State Design Office	Transportation Construction, Environmental Assessment	Hydrography (potential/future)
Environmental	Species and natural resources around a ferry terminal	WSF Terminal Engineering	Transportation Construction, Environmental Assessment, Natural Resource Management	None
Environmental	Topographic and Bathymetric Data	WSF Terminal Engineering	Transportation Construction,	Orthophoto

<b>Data Category</b>	<b>Specific Data</b>	<b>Source of Need</b>	<b>Business Function</b>	<b>Framework Theme</b>
	around ferry terminals		Natural Resource Management	
Economic Data	Business and Industry Locations along routes	WSDOT Planning Office, WSDOT Transportation Demand Management Office	Transportation Planning, Transit, Commute Trip Reduction, Transportation Construction, Environmental Assessment	None
Economic Data, Parcel Data, Land Use Data	Locations of social service providers, employment centers, medical care, day care providers, individuals using social services and transit routes	WSDOT Public Transportation Office	Transit, County, City, and State Social Service Providers	Cadastral (Partially)
Transportation Data	Road signal locations	WSDOT Olympic Region H&LP Engineer	Transportation Planning, Transportation Construction, Transit, Route Planners, Emergency Management, Counties and Cities	None
Transportation Data	Structures involved in collisions	WSDOT Olympic Region H&LP Engineer, Seattle DOT	Transportation Planning, Transportation Construction, County and Cities	None
Transportation Data	Collision locations	WSDOT Planning Office, WSDOT Transportation Data Office, Seattle DOT	Transportation Planning, County and Cities	None
Transportation Data	Various structures on county and cities roads (tunnels, bridges)	WSDOT Bridge Preservation Office, Seattle DOT	Counties, Cities, Emergency Management, Transportation Planning, Freight	None
Transportation Data	Traffic data for all modes including walking, bus, rails, water based travel, bikes, roads leaving state routes to arterials	WSDOT Urban Corridors, WSF Terminal Engineering, WSDOT Transportation Demand Management Office, Seattle DOT	Transportation Planning, Transportation Construction, Cities and Counties	None
Transportation Data	Pedestrian accident location data including: route location, road condition, traffic volume, speed, marked and unmarked cross walks, driveway locations, types of injury, medians, left turn lanes	WSDOT Highways and Local Programs	Transportation Planning, Cities and Counties, Transportation Maintenance and Operations	None
Transportation	Railroad crossing data including: safety rating, status of rail line at crossing	WSDOT Rail Office, WSDOT Bridge	Transportation Planning, Transportation Maintenance	None

<b>Data Category</b>	<b>Specific Data</b>	<b>Source of Need</b>	<b>Business Function</b>	<b>Framework Theme</b>
Data	(active, inactive) rate of train crossing, time of day of crossings, average daily traffic at crossings, ownership of lines	Office, Seattle DOT	and Operations, Freight, Counties, Cities, Emergency Management	
Transportation Data	Road locations	Pierce County, WUTC	All	None
Transportation Data	Road ownership and management information (sometimes called road authority) including owner level, owner name, manager level, manager name	IRICC Core Data Standards (IRICC Roads Committee)	Transportation Maintenance and Operations, Environmental Assessment and Modeling, Freight, Federal Land Management	None
Transportation Data	Road Functional Classification, Functional Type	IRICC Core Data Standards (IRICC Roads Committee)	Dot's, county, and local road management at all levels, Land Management at all levels	None
Transportation Data	Road quality and use information including Road Status, Road Surface Type	IRICC Core Data Standards (IRICC Roads Committee)	Dot's, county and local road management at all levels, land management organizations at all levels	None
Transportation Data	Address range on road segments	Pierce County, WUTC, Seattle Public Utilities	Environmental Assessment, County and local governments, Emergency Management	None
Transportation Data	Routing System	Pierce County, City of Tacoma, Seattle Public Utilities	E-911, Local and County Governments	None
Transportation Data	CRIS characteristics data on roads that includes (type, name, width, functional class, speed limit, etc.)	Pierce County	Transportation Planning, Transportation Analysis, MPO, County and Local Public Works	None
Transportation Data	Transportation Plans including the STIP, various TIPs and Tribal TIPs	EWU TTAP, Makah Transportation Planning	Transportation Planning, Transportation Funding	None
Transportation Data	Designators for roads from the FHLP including Indian Reservation Roads	EWU TTAP, Makah Transportation Planning	Transportation Planning, Transportation Funding, Transportation Maintenance and Operations	None
Census	Population of communities through which state highways pass.	WSDOT State Design Office	Transportation Planning, Transportation Construction	None

## Appendix A: Business Function Categories and Identified Business Needs

In the table below, each business need has been identified with one or more major business function categories that it is intended to support. These categories are listed in alphabetical order. For an explanation of these categories, please refer to ‘Summary Results’ in the “Executive Summary” section of this document.

<b><i>Business Function Categories</i></b>	<b><i>Business Needs</i></b>
<b>Asset Management</b>	A, B, C
<b>Cross-Governmental &amp; Public Communication</b>	D, E, F, G, H, I, J, K, L
<b>Environmental Analysis</b>	M, N
<b>Freight Mobility Planning and Management</b>	O, P, Q, R, S
<b>Geocoding / Event Location</b>	T, U, V, W, X, Y, Z, AA, BB, CC, DD, EE, FF, GG
<b>Homeland Security / Emergency Management and Response</b>	HH, II, JJ, KK, LL, MM, NN, OO
<b>Law Enforcement</b>	PP, QQ, RR, SS, TT
<b>Maintenance of Transportation Infrastructure</b>	UU, VV, WW, XX, YY, ZZ, AAA, BBB, CCC, DDD, EEE, FFF, GGG
<b>Map Production</b> [NEED DESCRIPTION FOR SUMMARY RESULTS SECTION]	HHH, III, JJJ, KKK, LLL, MMM
<b>Public Lands Management</b>	NNN, OOO, PPP
<b>Traffic Safety Records Support</b>	QQQ, RRR, SSS
<b>Transit and Public Transportation</b>	TTT, UUU, VVV
<b>Transportation Planning Studies</b>	WWW, XXX, YYY, ZZZ, AAAA, BBBB, CCCC, DDDD, EEEE, FFFF, GGGG

## Appendix B: Business Needs Cross-Reference Table

In the table below, each Business Need is associated with the original source record that it was derived from. The purpose of this table is for reference use only. The original source records can be found in the *WA-Trans Business Needs Document, November 14, 2005*.

<b>Business Need</b>	<b>Original Source Record</b>
A	15, 79
B	6, 7, 23, 32, 33, 74
C	58
D	1, 4, 11, 101
E	12
F	10
G (same as A)	15, 79
H	21
I	8, 20
J	40
K	26, 30, 35
L	29
M	57, 84
N	24, 83
O	55, 95, 96, 97, 100
P	41
Q	53, 54, 98, 99
R	86
S	3, 45, 46
T	39, 82
U (same as A)	15, 79
V	93
W	49, 67, 68
X (same as E)	12
Y	5
Z	42, 81, 92
AA	65
BB	103
CC	47
DD	48
EE	50
FF	70
GG	76



<b>Business Need</b>	<b>Original Source Record</b>
HH	81
II (same as Z)	42, 81, 92
JJ	94
KK	51
LL	14
MM	13, 43, 44
NN	87, 88
OO	52
PP	87
QQ (same as AA)	65
RR	(new business need)
SS (same as CC)	47
TT (same as BB)	103
UU (same as S)	3, 45, 46
VV	27, 28
WW (same as FF)	70
XX (same as P)	41
YY	61, 85
ZZ	38, 71
AAA (same as B)	6, 7, 23, 32, 33, 74
BBB	52
CCC	34, 77
DDD	18
EEE	75
FFF (same as GG)	76
GGG	60
HHH	37, 69
III	80
JJJ	64
KKK	56
LLL	59
MMM	66
NNN (same as NN)	87, 88
OOO	90, 91
PPP	89
QQQ	19, 72, 102
RRR (same as AA)	65
SSS	45, 46

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<b><i>Business Need</i></b>	<b><i>Original Source Record</i></b>
TTT	31
UUU	22
VVV	25
WWW	2, 9, 73
XXX (same as LLL)	59
YYY	62, 63
ZZZ	16
AAAA	17
BBBB (same as DDD)	18
CCCC	14
DDDD	27, 28
EEEE	78
FFFF (same as YY)	61, 85
GGGG (same as C)	58